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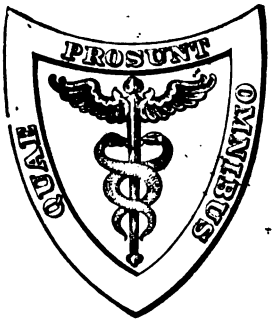
VOLUME LXI.

JULY—DECEMBER, 1892.



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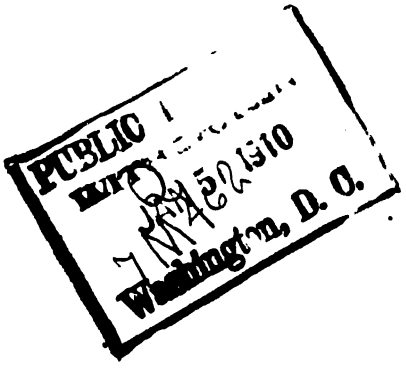

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, JULY 2, 1892. NO. 1.

ORIGINAL ARTICLES.

THE PRODUCTION OF BRONCHIAL BREATHING IN CONSOLIDATION AND OTHER CONDITIONS OF THE LUNGS.[1]

BY CHARLES CARY, M.D.,
OF BUFFALO, N. Y.

THE title of this paper is perhaps subject to misconception. It includes the discussion of the physical principles involved in the production of tubular breathing, and suggests that these same principles induce the broncho-vesicular and cavernous breathing, which differ from the first only in degree. There has been some little controversy upon this subject, limited, however, largely to those authors that have practical minds and a fancy for acoustics. Most of our modern text-books contain descriptions of the sound, and account for its production by quoting one of the few authorities that have written on the subject. The explanation offered by Laennec, and still held by some, was that the sound was produced by the vesicular murmur being cut off and the tubular or bronchial sound alone being audible. In the fourth edition of his work he expresses himself as follows: "The sound observed in the larynx, trachea, and larger bronchial trunks is due to the absence of that slight crepitation that accompanies the dilatation of the air-cells of the lungs, and the idea of a drier sound is suggested to us. It is strong in most parts of the neck. When the texture of the lungs becomes indurated or condensed from any cause, such as pleuritic effusion or the changes occasioned by a severe peripneumony or hymophysis, the vesicular respiration having then disappeared, or being much lessened, we can frequently perceive distinctly the bronchial respiration, not only in the large, but even in the small ramifications of the bronchi. The cause of this bronchial respiration appears to me very obvious; in fact, when the air is prevented from penetrating the cells this is the only kind of respiration that can exist, and is louder and more distinct in proportion as the lung is more condensed and thereby becomes a better conductor of sound."

Dance, a French authority of later date, adopts virtually the views of Laennec, and states in the *Dictionnaire de Médecine, ou Répertoire Générale des Sciences Médicales*, of 1833, that bronchial breathing is present when the air passes through the bronchial tubes without reaching the pulmonary cells. It produces in the ear a sensation of columns of air winding in the tubes of a certain caliber, without the sound of vesicular expansion; sometimes the sound is so intense as to make it seem that the patient's breath is passing through the stethoscope instead of through the bronchial passages.

Skoda thought that the tubular breathing was the transmitted laryngeal sound intensified or otherwise altered through what he called consonance; but he does not use this word in its ordinary acoustic sense, but explains that he applies it with the compound meaning of consonance and resonance, applying the principles of the sounding-board to obtain the intensity that he suggests. He does not make his views clear, except so far as the principle is concerned. The following is a translation of what is written in his *Abhandlung über Perkussion und Auskultation:* Bronchial breathing can be higher, stronger, deeper, or weaker, or even just as high and as strong as laryngeal breathing, and is due to consonance in sound in the upper and lower portions of the air-passages; the difference in volume and pitch depends on the condition of the inner lining of the air-passages in admitting of the production of the consonant sounds.

The most elaborate treatment of this subject that has come to my notice is found in Flint on the *Respiratory Organs*. Here Austin Flint devotes considerable space to this subject, and concludes by regarding bronchial respiration as "consisting of transmitted sounds that are produced within the trachea and primary bronchi, and probably also within the subdivisions of the latter, and are conducted by the air in the tubes and the consolidated lung to the ear of the auscultator. In what proportion they are due to the trachea and the larger bronchi exterior to the lungs, and to what extent sounds generated within the pulmonary bronchial subdivisions may be combined, are points not easily determined."

Flint certainly had an analytic mind, and his description is the most satisfactory. More modern writers adopt this view without notable modification. Guttman devotes fair consideration to the opinions of others, but expresses his views as follows: "The bronchial respiratory murmur heard in disease is nothing more than the laryngeal sound carried with scarcely diminished intensity through consolidated

[1] Read at the meeting of the Association of American Physicians in Washington, May 24, 25, 26, 1892.

lung-tissue." The views of R. C. M. Page and Vierordt are virtually the same. So also are those of S. S. Burt, excepting that the latter speaks of the sound as being transmitted through the bronchial tubes as through a speaking-tube, directly to the surface and ear of the auscultator. It will be observed that there is no great variety of opinion, and, without quoting at greater length, authorities are not fully satisfied with their own explanations, for they quite universally acknowledge differences of pitch over different regions in the same individual, and even contrast the laryngeal and tubular pitch, pointing out differences that all will concede could not exist if the source of the sound were the same, for pitch cannot be altered by the medium of transmission, and, as Dr. Flint says, "there are circumstances which give rise to variations in pitch which we do not understand, and that the sounds generated within the trachea and bronchi as in conditions of health, will not suffice to explain the intensification of sound which sometimes characterizes bronchial respiration in disease, nor the disparity in pitch which is observed." He further concludes that "other physical influences are doubtless involved which are not as yet satisfactorily explained."

Dr. J. Bloodgood, of Chicago, published an article on this subject in 1860 which has not received the consideration that it deserves, and my attention was only called to it within the past few days. In this article it is claimed that hepatization is not necessary for the production of tubular breathing and that the normal lung-tissue offers a good medium for conducting sound, as demonstrated by the clearness with which sibilant râles are heard when the parenchyma is normal; that when a bronchus becomes temporarily blocked by viscid mucus a clear tubular sound is at once detected, and this disappears when the secretion is coughed up; during the time it is heard the lungs are normal. Dr. Bloodgood argues from this that the air in its passage downward is diverted into many tubes the aggregate capacity of which is much greater than that of the trachea and bronchi; that it therefore rushes more and more slowly the more deeply it penetrates; that should a small bronchus become plugged at a little distance from its origin, or lead to cells filled with inflammatory product, it would furnish a cavity analogous to the Pandean pipe, and yield a tone determined by its size; that if it were located high up in the lungs, where the air has the greatest velocity, it would be intense, but if located in the lower lobes the sound would not be induced, or if present the intensity would be diminished. His argument is based upon false anatomic grounds, and he does not accord the transmitted laryngo-tracheal sound its place.

I began, about three years ago, a line of work and experimentation having the great charm called original work, which always acts as a wholesome spur, and after eighteen months of time it developed most successful results; but in that time I also made the discovery that my undertaking was not new, though I had succeeded without the knowledge that the ground had already been staked out by others. The work referred to is the making of casts of the air passages, and for that purpose I used an alloy composed of—tin, 4 parts, lead 8, bismuth 15, and cadmium 3. This alloy softens at 60° Centigrade, and fuses at 65°.

I do not know how my castings may compare with those made by others whose opportunities may have been better than mine, and who may have purused their work for a longer period than I did, for I have never seen any of the kind; my object is only to illustrate the basis of the explanation here advanced as to the causes that contribute to the production of the sound that we all term tubular or bronchial breathing. The castings are made from healthy lungs. These should be procured as soon after death as possible, and the cast is formed by pouring the alloy of low fusion into the trachea and allowing it to penetrate as far as possible into the tubes and vesicles before it chills and consolidates. It hardens almost immediately into a solder-like form, and the lung is then macerated in caustic soda, and eaten off, leaving the casting, representing what must be the exact caliber and shape of the air-passages, as far as the metal has penetrated, without burning or destroying the pulmonary tissue. I need not remind you that success does not attend each attempt, that the degree of heat, the pressure and the presence of moisture will modify the result and act as factors in the frequent failures, and determine the degree of success. In most instances castings of the larger bronchial tubes were obtained; in some, of the most minute tubular subdivisions; and, in a few, of the surrounding vesicles.

Whenever the vesicular castings were obtained the tubes were of course hidden from view. The castings were also not complete throughout the lung, and were often unavoidably broken off in the preparation, even by their own weight. Human lungs do not prove good specimens unless procured from subjects dying from hemorrhage and after a short illness, as the mucus always present debars the possibility of a perfect cast. The preparations were made from adult and infant human lungs, and the lungs of sheep, calves, dogs and rabbits. In many cases the alloy was poured into the trachea while the lungs were still *in situ*.

It is not within the province of this paper to discuss the anatomy of the lungs or to point out the errors that exist in some of our best descriptive Anatomies; but I particularly invite attention to the

method of division or branching of the bronchial tubes, which quite uniformly takes place at about the same angle, and uniformly by bifurcation, and that the air only reaches the air-cells after passing through a long route and varying in its course at the different points of bifurcation. Furthermore, at these points the bronchial tube possesses a sharp edge, which acts as a prow to cut the column of air at the bifurcation. This cutting edge is described in Sappey's *Descriptive Anatomy*, and he says that on a level with each division one sees in the cavity of the bronchial tubes a spur or prow to cut the column of inspired air. If the bronchi are given off at an acute angle this spur is very pronounced and very sharp. In collapsed lungs the bronchi are naturally much diminished in size, and this cutting edge is not very apparent, as it is not thrown out in relief; but in consolidated lungs, as in pneumonia, it is readily seen. I am confident that bronchial breathing is a mixed sound, composed of laryngo-tracheal and cavernous elements, the laryngo-tracheal sound being transmitted through the bronchial tubes by the air in their cavities, and thence communicated to the consolidated or compressed lung, to the chest-wall, and heard by the auscultator, diminished in intensity according to the lack of transmitting power of the different media through which it has to pass; that added to this sound in proportions differing under different circumstances, but often predominating in volume, is a *tubular blow* that is produced by the air rushing over the open and cavernous mouth of a patulous bronchus that leads to a lung not receiving its quantum of inrushing air.

Now, bearing in mind the cavities represented by these bronchial tubes, either of the first, second or third magnitude, the air-cutting edge referred to by Sappey, at the point of bifurcation, I believe we have the explanation needed for variations in pitch, as well as one of the contributing elements in inducing tubular breathing, and, perchance, the same tubular blow will be induced, whether the air is passing in or out of the lungs.

This point can be demonstrated by five figures of a purely conventional character, to illustrate how tubular breathing can be produced in the higher grades of pneumonia with consolidation; in pleurisy, with effusion, when the lung is in contact with the chest-wall; in necrosis, with a cavity; and how, when produced, it could not be heard in cases of effusion, if fluid intervened between the lung and the chest-wall. In all of these cases it is apparent that over areas in which tubular breathing is heard there is diminished or suppressed vesicular expansion. Under these circumstances it can hardly be questioned that, in order to reach other portions of the lungs, the air rushes by and over the bronchus leading to the diseased portion, to fill the air-vesicles that do expand, and that at the point of departure the cutting edge described by Sappey must produce a reverberation, engendering a sound analogous to that which would be produced by blowing over a test-tube; and its pitch will depend upon the length and caliber of this bronchus; this is the additional sound that, for lack of a better term, I have called the *bronchial blow*. If the rush of air to other parts of the lungs is rapid, the intensity of this sound will be augmented. If the size of the tube be small and shallow, its pitch will be raised; if large and deep, the pitch relatively lowered; but in any case, higher than a laryngo-tracheal sound, except in conditions of disease of the larynx, in which case its pitch might be raised much above the normal. When this sound is intense, as we find it in the rapid breathing of acute pneumonia, or extensive effusion, with the lung pressed or bound to the thoracic wall, it contributes largely to the sounds heard, thus raising the pitch and augmenting the intensity. Should rapid breathing subside in the cases named, or should secretion obstruct the mouth of the tube, or fill its cavity, then the intensity of this element would diminish, or the sound entirely disappear. The pitch of this blowing sound is determined, as has just been stated, by acoustic laws and depends upon the length of the bronchus and its caliber at its point of departure. The principle is susceptible of ready demonstration, with apparatus to be found in any of our offices. Blowing over a small test-tube will yield a sound of a certain pitch; on filling the tube partially with water, the pitch will be raised; a long, narrow tube will yield a low-pitched sound; a flask may be treated in the same way to illustrate the reverberation in a cavity. This experiment may serve to explain how, after a short lapse of time, both pitch and intensity of sound may be altered in conditions of consolidation by the presence of secretion in the tubes. I would further offer as an explanation of the exaggeration of the tubular element heard over cavities, particularly when they are near the surface, that the intensity is very much augmented by the proximity of the sound to the ear of the auscultator, and this rule applies equally to all physical sounds, and the more remote from the point of its production, the less audible it becomes; it is for this reason that sounds are sometimes limited to very small areas, particularly when the medium of transmission is poor. Again, sounds produced externally to the larynx cannot be heard with distinctness, and those which are most distinctly heard are produced at the periphery of the air-passages, or near the ear of the auscultator; labial sounds, such as chirping and whistling, are only heard as transmitted by the

external air; they are never intense, whereas any artificial means that produce a rush of air in the respiratory tract nearer the ear are markedly exaggerated, as, for instance, the expiratory "puffs," produced in this way; whisperings are intensified in like manner; the intensity of sound at different periods of respiration depends upon the same law. I do not think it would be possible to state what proportion of the sound is attributable to the different elements that go to make it up, for I am convinced that the proportion varies notably with different degrees of consolidation and under varying conditions, the discussion of which would be foreign to my purpose here. It seems to me that the reason why this explanation has not been offered before is because the size of the tubes has been very much underrated by those who are in the habit of making physical examinations; commonly when examined the lungs are collapsed and the bronchi are diminished in size, but the castings show that there are fully sixty tubes in the human lung capable of inducing a bronchial, blowing sound, while several bronchial casts in distended lungs have a diameter of about half an inch in the clear; these latter would certainly yield a large volume of sound.

Before closing I would not be understood as saying that the larynx does not play a rôle, and a very important one, in determining the pitch and quality of bronchial breathing, for I have experimented upon some of the lower animals, inducing pulmonary consolidation, and with an opening into the trachea I have been able to cut off the laryngeal sound at will; from this experiment, although it was not complete, for I found it difficult to produce pneumonia in a dog at will, I was convinced that the larynx, as well as the trachea and the *bronchial blow*, are the three elements that, in the aggregate, induce the sound that has been the subject of this paper.

SYPHILIS OF THE LINGUAL TONSIL.[1]

BY JAMES E. NEWCOMB, M.D.,
ATTENDING LARYNGOLOGIST, DEMILT DISPENSARY; ASSISTANT IN THE ROOSEVELT OUT-PATIENT (THROAT) DEPARTMENT, NEW YORK CITY.

ALTHOUGH the past decade has witnessed marvellous progress in every department of that branch of medical science that specially interests the members of this Section, in none, perhaps, has greater interest been felt than in the one that concerns the pathology and treatment of the various conditions that beset the adenoid tissue of the mouth and nasopharynx.

The introduction, by Waldeyer, of the term "tonsillar ring" into medical literature has led to a more accurate understanding of the relation of the various adenoid deposits to each other, both in structure and in function. Nor, moreover, is this term merely a fanciful one. There is almost a circular continuity of adenoid tissue from the nasopharyngeal vault to the tubal deposits, to those on the posterior surface of the soft palate, to the faucial tonsils, and to those at the base of the tongue.

Modern histologists have greatly differed as to what constitutes a typical tonsil. It seems to me that the recent paper of Harrison Allen(1) is at present the best exposition of the subject. According to this writer, a tonsil is essentially an association of diverticula developed from the epithelial layer of the mucous membrane. In the walls of these diverticula are grouped muciparous glands and lymph-follicles; and the mouths of the diverticula open in a uniform manner on the surface of the mass. The various tonsillar masses differ only in the arrangement of these anatomic units, so to speak. In the lingual or fourth tonsil they are single.

In spite of all we know regarding the structure of this tissue, however, we are still in the dark as to its physiology. Hingston Fox's theory (*Lancet*, 1888) of absorption has been discarded. Scanes Spicer's views as to their share in the blood formation (2), "nurseries for young leukocytes, planted by the waterside and drawing their sustenance from the streams nutrient," afford opportunity for pleasing phrases, but do not recognize certain obscure points in our knowledge. The fascinating doctrine of phagocytosis, advanced by Metschnikoff, caused many to think that the problem had been solved, but further investigations, carried on in a calmer frame of mind, have caused the profession to bring in the Scotch verdict of "not proven." Yet this doctrine is certainly worthy of consideration, for it fulfils, better perhaps than any other, the condition of a scientific theory, viz., it best explains observed phenomena. Hodenpyl, in a recent article, regards the functions of the tonsils as unknown.

The latest portion of the tonsillar ring to receive attention has been that localized thickening and broadening of the adenoid tissue at the base of the tongue. That we call the fourth or lingual tonsil. It is situated behind the circumvallate papillæ, and extends a varying distance toward the anterior surface of the epiglottis. It consists of closed follicles surrounded by irregular masses of adenoid tisse, the whole bound up in connective tissue. Our great advance in knowledge has come in the realization of this fact: that we have here, both in structure and in function, a tonsil, modified, it is true, by its situation, but subject to all of the mutations of tonsillar life. Stoerck, in 1877, first called attention to the trouble that its enlargement may produce by

[1] A paper read before the Laryngological Section of the New York Academy of Medicine, April 27, 1892.

irritation of the epiglottis. Since then many observers have reported various reflex neuroses arising therefrom. Curtiss has shown its effects upon the singing voice; Joal ([3]), how it may cause esophageal spasm and be a factor in globus hystericus; Heyman, Michael, Bentz, Rice, Swain, and others, have discussed the general question. Attention has also recently been called by Ruaulb ([4]) to the fact that we may have a peri-amygdalar cellulitis here, as in the fauces. He reports five cases of this affection: once in the median line, three times to the right, and once to the left. It is worthy of note that tonsillar hypertrophy here is generally confined to the middle period of life, while in faucial and retronasal situations the hypertrophy is characteristic of adolescence.

Furthermore, we have learned that the fourth tonsil is not merely a servile imitator of those pathologic processes that precede it in other segments of the tonsillar ring. It may present conditions entirely independent of those of its neighbors. These may be involved while it escapes. Natier ([5]) has noted that in syphilis of the faucial tonsils we may have a thickening of the ary-epiglottidean folds, with a tumefaction of the epiglottis by an abundant vascularization, while the fourth tonsil escapes intact. Schaede ([6]) has seen enlargement of the latter, while the other adenoid deposits have been in an atrophic condition.

The lingual tonsil, however, can lay claim to being the site at which diathetic influences may frequently localize themselves. Little attention has, until recently, been directed to its relation to the syphilitic virus. That such a relation exists is beyond dispute. We have heard much about chancre of the lip, of the anterior part of the tongue, and of the faucial tonsils with their pillars. From the sheltered position of the lingual tonsil, it can rarely, if ever, be the seat of primary infection. In fact, in a careful review of the literature, no such case has come to my notice. It is often the seat of secondary trouble, more rarely of the gummatous deposit, with its subsequent breaking down. This would be a logical deduction from the law of identity in structure and function, and one corroborated by clinical experience. Yet it is somewhat remarkable that the syphilographers, who go into such details in regard to specific lesions of other parts of the mouth, should have passed over the matter in silence, especially as now over thirty years have elapsed since the existence of true lingual chancre was demonstrated by Le Gendre. The causes of this condition and the circumstances that determine the localization of the lesion are, as far as we know, referable entirely to various forms of irritation. It is more common in men, and generally in young adult life. It is more common in those addicted to excesses in tobacco and alcohol; also, in those whose occupations require prolonged straining of the vocal organs. Further than this, the lesion offers no exception to the general rules of syphilis.

The condition is frequently overlooked because the symptoms do not differ from those observed when the pharyngeal walls bear the brunt of the trouble. When the localization is at the base of the tongue, in the median line, there is the sensation as of a foreign body. When it is confined, as it sometimes is, to the lateral portions, the function of the pharynx in deglutition causes more or less painful swallowing, the pain radiating toward the ears. The voice is frequently husky, and becomes quickly fatigued. Cough is frequently present, and not rarely asthmatic breathing. In other words, the syphilitic lesion occasions no other distinctive symptoms than may arise from simple hypertrophy.

It is in the pathologic appearances, perhaps, that the greatest interest centers. These may manifest themselves either in the median line or on either side thereof. Two different pictures present themselves—as best described by Moure and Raulin: ([7])
1. Nipple-shaped protuberances, grayish-red in color, and separated by furrows. Their summits are ulcerated and crowned with the typical mucous plaque, clean-cut, and clearly differentiated from the surrounding surface. Each protuberance corresponds to a group of closed and inflamed follicles. The neighboring tissues are not at all involved.
2. There is at times a single tumefaction, median or lateral; a compact mass with slightly projecting swellings, the top of each of which is covered with mucous plaques, varying in size, diffuse and generally ulcerated. The whole mass is of ovoid or spherical shape, and the area involved is much greater than in the first variety. Here, while the closed follicles are infiltrated, the tissue between them is also infiltrated, and this interstitial infiltration is what goes to make up the mass. The epithelial layer of the mucous membrane and the submucous connective tissue both participate in the morbid process. There is not only a folliculitis, as in the first variety, but a peri-folliculitis as well—a folliculo-interstitial process. The transformation of the first type into the second is very rare. Of course, we must bear in mind that in any case the exact picture varies according to the normal distribution of the follicles and their size before infiltration, which in turn depends upon the preëxistence of simple hypertrophy.

The clinical history of a case that has recently come under observation, is as follows:

W. D., a colored man, thirty-one years old, was first seen in the Roosevelt Out-patient Department (in the service of Dr. Jonathan Wright), January 23, 1892. The man was a porter, stout, and of

rugged physique. His family history was good. He was a moderate drinker of malt liquors, and had used tobacco to excess. Last fall he had a slight attack of rheumatism, that did not compel him to give up work. In September, 1891, he had the initial lesion of syphilis. No alopecia or rash followed, but in December (about six weeks before coming under observation) he began to complain of sore-throat, with pain in swallowing. Examination revealed a normal nose. The faucial tonsils were swollen, and their surface more or less convoluted. The inside of the cheeks was sprinkled with mucous plaques, and the anterior surface of the tongue as well. A few superficial ulcerations existed in the naso-pharynx. At the base of the tongue, on either side of the median line, were situated lesions of the first variety, previously described.

Labit (8) has recently described a somewhat similar case. His patient was a male, twenty-nine years old, who had contracted syphilis six months before. No rash had been observed. Three months before the man was first seen he had begun to have painful spots in the mouth, with hoarseness and difficulty in swallowing. There was a general redness of the faucial tonsils and of the palatine vaults. The latter showed whitish patches, elliptical in shape, with uneven edges. There was an erythematous redness of the larynx, with slight inflammation of the ary-epiglottidean folds and vocal bands. In the region of the lingual tonsil the follicles appeared as projecting nipples, red, varying in size and separated by furrows of varying depth. The summits of some of these projections were covered with grayish ulcerations, contrasting strongly with the surrounding redness.

The tertiary lesions are more uncommon. Natier(5), writing in 1890, had been able to find the records of only fifteen cases in French literature. The diagnosis of this condition is difficult before the appearance of disintegration, and yet of the utmost importance, because the ulcerations may extend deeply and reach important bloodvessels.

A few words may be said concerning the differential diagnosis. This, as in doubtful specific cases, must be made from the history, the local appearance, and other evidences in neighboring parts. Schumacher (9) has called attention to one clinical manifestation that might give rise to some confusion. It is a local appearance met with, independently of mercurial stomatitis, in the pharynx of those patients who are being treated by inunctions. It begins among the circumvallate papillæ, and spreads backward to the epiglottis, attacking especially the edges of the pharyngeal and epiglottidean mucous membrane, passing down at times to the entrance of the larynx, seldom to the posterior laryngeal wall. At first there is only a slight dulness of color, but in a few days there are visible snow-white deposits, from one-half to one centimeter in circumference, surrounded by a zone of intense redness. If the condition be severe, the cervical and submaxillary glands may swell. Such manifestations generally precede the cutaneous eruption.

Concerning the early diagnosis of the gumma, we are aided by the induration of the surrounding area, the center of which will, if the evolution of the deposit be not checked, eventually support the deep cone-shaped ulcer characteristic of the fully-developed lesion. A suspicious sign is a slight thickening of the palate and the same side of the uvula. The absence of adenopathy is negative evidence. Its presence also does not greatly help us, because a unilateral glandular enlargement is characteristic of several affections. Moreover, carcinoma, chronic abscess, and diphtheria may all be attended with the radiating pains already alluded to. Here, as elsewhere, the grouping of features must decide the diagnosis.

Concerning the treatment of this condition, we are fortunately in a position to do much. The internal medication with the various mercurials generally yields prompt and satisfactory results. For local relief, we may at first need sedative applications. Natier has suggested a spray of potassic bromide with cocaine, in cherry-laurel water; Moure and Raulin, a gargle of Sydenham's laudanum in glycerin. For an alterative effect probably nothing exceeds in efficacy Mandl's solution of iodine, potassium iodide, and carbolic acid in glycerin. There is some danger in too irritant applications, as the epiglottis and larynx might be injured. Spasm of the glottis, and even edema, are not mere fanciful dangers. In the acute stage, the applications of dilute acid nitrate of mercury stimulate to healthy action. This, in my own case, with a sublimate gargle and mixed treatment, led to a cure in about five weeks. For inveterate cases, light applications of the cautery have served as a useful adjunct to other treatment.

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131 WEST SIXTY-FIRST STREET.

SOME PRACTICAL POINTS IN REGARD TO EYE-STRAIN.[1]

BY R. O. COTTER, M.D.,
OF MACON, GA.

MY reason—I will not say apology—for calling attention to this rather hackneyed subject is

[1] Read before the Georgia State Medical Association, April 21, 1892.

because in my daily work as an oculist I am constantly impressed with the observation that the vast majority of general practitioners overlook the easily substantiated fact that such a multitude of morbid reflex neuroses are brought about by eye-strain—that is to say, uncorrected errors of refraction. I refer especially to hyperopia and hyperopic astigmatism. As to myopia (near-sightedness), I have little to say of it, as it is rarely accompanied by headache and eye-strain. Myopes complain simply of not being able to see well enough at a distance.

Headache is by far the most common accompaniment of hyperopia and astigmatism. These headaches are most common in the temples, the frontal region, and vertex. They frequently appear to be what are known as sick or bilious headaches, and are in any case truly distressing in character. Among the other symptoms are a congested or inflamed conjunctiva, blepharitis, styes, chalazia, frequently an annoying and uncontrollable twitching of the eyelids, aching of the eyeballs, etc.

There is no doubt that chorea is often developed in children as a result of this same cause. There is, also, no doubt that in persons of neurotic temperament, indigestion, nervous dyspepsia, insomnia, and more or less complete physical prostration, are brought on simply from uncorrected eye-strain. There are plenty of these cases on record. I verily believe that there are very many helpless opium-habitués and inmates of insane-asylums whose unbearable suffering from this very cause was the cause of their first step in their downward career.

The incredulous general practitioner who has not yet become impressed with the truth in this matter will smile at what he not unnaturally believes are the vagaries of the hobby-riding oculist. Gentlemen, while I know that unfortunately there are riders of hobbies among oculists as there are in all specialties, let me remind you that the demonstration and correction of ametropia comes a little nearer being an exact science than any other branch of our profession. As for my own work in this line, I think it has been conscientious and painstaking. My books are open to you at any time; my patients are accessible to many of you throughout this section. They, and the results accomplished, can speak for themselves. I will try to illustrate by reciting two or three cases:

CASE I.—Mrs. A., a married lady, aged twenty-seven years, of neurotic temperament, has no organic disease, and for several years has been an almost constant sufferer from the most horrible headaches. Any attempt to read or sew would result in her having to go to bed with a sick-headache. Even when she went out shopping, a terrible headache was certain to follow. The poor woman had, fortunately, successfully fought against taking opium, but she afterward told me that she had almost concluded to ease her torture by resorting to morphine. She had unmistakably injured her system by taking great quantities of antipyrin, phenacetin, etc., and this was largely by physicians' directions. She became wasted and yellow, and was fast losing all hope of relief. Her very life was becoming rapidly blighted.

Now, strange to say, of the six reputable physicians who had treated her for her headaches, etc., five of them were men who would have promptly referred a case of granulated lids, iritis, or any other manifest eye-trouble to the oculist for special treatment, but only one of these six, and she a woman physician just out of college, seemed to suspect the real origin and cause of this patient's trouble, and she sent her to me, the patient protesting all the time that "she had no faith in an eye-doctor curing her headaches, because she had no eye-trouble—could see well enough," she thought, and her eyes were not at all inflamed. I found that her vision was, R. E. 20/LXX, and L. E. 20/XL, of the normal acuity. With a four-grain solution of atropine, dropped into her eyes night and morning, I found R. E. = 20/CC, L. E. = 20/LXX. From the very hour, by the way, in which I dilated her pupils, she got relief from her headache (so long as the accommodative paralysis lasted), and she informed me next morning that she had, for the first time in months, enjoyed a night's rest free of headache.

By way of digression, let me say, that it is a very good rule, when you encounter severe and intractable headaches in young persons (say persons under forty), to drop a few drops of a four-grain-to-the-ounce solution of atropine in their eyes, and very generally, not invariably however, if their headache is relieved, you can pretty safely put it down as a case of refractive error.

To return to my patient: I found the following remarkable condition of mixed astigmatism:

R. E. + 1.50 D, cyl. axis 90° ⊖ — 1 D, cyl. ax. 180°.
L. E. + 1 D, cyl. axis 90° ⊖ — .50, cyl. ax. 50.°

This may truly be called a diabolical error of refraction.

I prescribed these glasses, and knowing that she would soon become disgusted with the attempts to use them with undilated pupils, I began with dilated pupils, and predicted confidently that they would give her great relief, though I candidly told her that it might require considerable time to get her over her headache habit—for there undoubtedly is a headache habit, so to speak, a condition of periodic or constant headache that does become habitual. For several weeks thereafter, when she would become discouraged on the attempt to use her glasses, I would dilate her pupils. It required all my tact to keep her using them, but now, after many months have elapsed, I can truthfully say that the correction of this lady's refractive error has made life a very different sort of existence to her, and has changed her suffering condition to one of happiness and joy. She is free from her terrible

headaches, and has gained flesh and strength. Nothing else was done for her but the correction of her eye-trouble. She finds most comfort in the constant use of her glasses, and her vision with them now is, R. and L., 20/XX.

While such a peculiar astigmatism as hers is very rare, I could recite the cases of many patients, even with very slight degrees of astigmatism and hyperopia, who suffer with the most terrible headaches in consequence, and very many of these patients have normal vision. I myself have more than normal acuteness of vision, it frequently being as good as 20/XII, and yet I have an astigmatism of + .75 D, ax. 90°, and a hyperopia of + .75 D. If it were reduced to a question of simple comfort, I would prefer to give up my shoes or hat rather than my glasses. I said that we do not usually find eye-strain in persons over forty-five, for the reason that nature has brought on a change or loss of function in the ciliary muscle, so that they can no longer overexert it; yet, sometimes we do find that in such patients there is eye-strain or asthenopia.

CASE II.—Mrs. ——, aged fifty, of Boston, had been fitted with the glasses ordinarily proper for the presbyopia usual to one of her age, yet she has for many years had great trouble upon any attempt to read or sew. She suffered severely with eye-ache, styes, inflamed lids, etc. While spending the winter in this State she was advised to consult me. As I could find no other ocular trouble, I made a careful ocular test of her refraction. At her age, of course, I did not use a mydriatic. Her vision was 20/XX. I found that her Boston oculist, who was a man of reputation, had overlooked or failed to correct an error of one-quarter of a diopter of hyperopic astigmatism, which my test plainly showed. I prescribed glasses: + 2 D ⊂ .25 cyl. ax. 90°, for close use, and soon had the happiest results follow their use. She rapidly recovered from her eyeaches and inflamed lids, and now uses her eyes as much as she chooses. Bear in mind that this lady had the slightest degree of astigmatism that we ever encounter. I have no doubt that in prescribing glasses for presbyopia all occasionally commit the same inadvertence which this lady's former oculist did.

CASE III.—A boy, seven years old, had been growing more cross-eyed for nearly a year, but as it was of the alternating variety and not firmly established in either eye, his parents consulted me about a nervous twitching of his limbs, neck, etc. (chorea), rather than for eye-trouble. His vision was below normal, but this had not been previously noticed.

When I proposed to undertake the correction of his trouble by the use of glasses, they objected very vigorously to his using them, unless I could make the ridiculous, but very frequently desired, promise that their son would soon be able to leave off the use of glasses. They were willing, though, that I should perform an operation for the strabismus which, by the way, was now about two and a half lines. Of course, I refused to touch the case at all under these circumstances. I think they brought the boy to me half a dozen times during the year, asking me to operate on him. Finally, seeing that I was bound to have my way in the matter, they consented to an examination of the boy's refraction. His vision was:

R. = 20/XL. L. = 20/L.
Under atropine: R. = 10/CC. L. = 10/CC.
With + 6 D: R. and L. 20/XX, or normal.

I prescribed this full correction, and by keeping his pupils under atropine for two or three weeks he experienced no trouble in wearing his glasses. His strabismus and chorea disappeared at once, and have not returned after two years. The boy has been at school ever since.

I never cut a muscle when I can do what is necessary without it. This I consider conservative ophthalmology. Of course, when the squint has become firmly established, we have (usually) to operate as well as correct the refractive error.

My observation is that even in children when the error is as much or more than + 3 D, it is best to try to make them wear a fully correcting glass constantly. When the error in young persons is less than 2 D, I wish to state that I do not now so frequently prescribe a fully correcting glass for close use as I formerly did.

I shall not weary you with detailing accounts of cases showing the very long train of morbid nervous conditions brought about by uncorrected refractive errors. All these have been clearly proved to exist by faithful and painstaking workers in ophthalmology. As for myself, I assure you that I do not prescribe glasses for every case of small refractive error that I find. Many of these require general systemic treatment and toning up, and I send them back to their family physicians. Many others simply need a rest, or to stop abusing their eyes; and as I well know if given glasses they would simply continue to overtax their eyes, I generally refuse to prescribe glasses. I have good reason to suspect that there has of late been too much hobby-riding by some in the way of useless muscle-cutting for heterophoria. My observation of several years convinces me that eye-strain is not so much caused by a lack of equilibrium of the external muscles of the eyeball (heterophoria). Neither do my patients require prisms so frequently as employed by others. I am thoroughly convinced that the very great majority of cases, of eye-strain that I see are caused by ciliary strain, which is of course due, in the cases I speak of, to ametropia. I have very frequently found persons wearing prisms who were unrelieved thereby, and upon my searching very carefully I could find no occasion whatever for them, and have relieved many of them by leaving off the prisms and

correcting their refractive error. I am always willing and ready to compare results with the muscle-cutting and prism enthusiasts.

A word about mydriatics in refractive work. I believe I have thoroughly tested the comparative merits of atropine and homatropine, and while admitting the discomfort and inconvenience caused the patient by atropine, I must still say that homatropine is so very frequently unreliable, that in cases in which it fails to give accommodative paralysis I very often have to resort to atropine. In young persons under thirty I always, if possible, use atropine. Of all methods of exhibiting homatropine that I have used I consider the gelatin discs advised by Dr. Casey A. Wood, of Chicago, by far the best. As to the practice of attempting to correct these refractive errors simply with the ophthalmoscope, *i. e.*, without a mydriatic, I had as lief argue with a man who preaches against the value of vaccination as with a man that asserts that refraction work can thus be properly done.

The correction of refractive errors, gentlemen, is the most prominent, and by far the most scientific, part of an oculist's work, and I assure you that too many general practitioners overlook many of these cases. One meets with a hundred of these sufferers to one of cataract.

INTESTINAL LESIONS IN ABDOMINAL AND PELVIC SURGERY.[1]

BY JOSEPH PRICE, M.D.,
OF PHILADELPHIA.

IT is not my purpose to consider in detail all of the complexities and manifold relations of abdominal and pelvic surgery. I only desire to indicate the part that intestinal lesions play in making the pathology of abdominal and pelvic disorders complex, and afterward to consider the best way of dealing with the intestinal complications for the good of the patient and the comfort of the surgeon.

In order to appreciate the part that intestinal lesions play in obscuring the diagnosis and interfering with the surgical treatment, it is necessary to study the history of all pelvic pathologic growths, as well as of suppurative and inflammatory products found in the pelvis. Complications involving the hollow viscera during the progress of the growth or formation of these tumors and products furnish the chief danger experienced in the surgical relief of patients so suffering. It is rare that any suppurative process is ended without some intestinal complication in either the pelvis or abdomen. In the presence of such processes, universal adhesions to all surrounding organs is the rule. This is true of purulent deposits in the tubes, abscess of the ovary, and in the dermoid cyst, whether large or small.

The appendix, in my experience, plays no small part in complicating ovarian and tubal trouble on the right side; when this is the case this organ must be removed, though primarily it may not have entered into the consideration of the surgeon at all. In more than one instance, operations in which the appendix has been removed have been instituted for some condition not associated with the appendix.

It is plain that in order to be successful in the treatment of pelvic and abdominal troubles a comparative knowledge of the complications must be had. Aside from conditions brought about by purely pathologic processes, post-operative complications, due for the most part to hasty, ill-advised work, or unfinished operations, are at the bottom of a good deal of surgical complication that would not otherwise exist. Such operations are the worst that surgery has to deal with, because they involve both new and old inflammations, together with the effacement of anatomic landmarks that would otherwise exist. Nevertheless, there is much to be learned from these operations, just as we have learned much from the pioneer attempts of the earlier gynecologists, and a dexterity acquired in manipulating the complicated cases is of infinite value in the simpler ones.

In the same category may be placed complications due to failure to drain, and the use of irritating solutions. If we do not drain products likely to go on to organization, or if we use fluids that encourage inflammatory peritoneal adhesions, it is evident that we are at once on both horns of a dilemma, and the patient will be prodded from two quarters. Meddlesome interference with what would otherwise be natural drainage, by the introduction of quantities of gauze into the pelvis, must of necessity produce adhesions. The less the peritoneum is finally meddled with after the completion of an operation, so much more surely will there be an absence of damaging adhesions. What is required here, as in all work from which good results are to be expected, is to rely on logical procedures scientifically applied. Hop-skip-and-jump methods, while they are exciting and acrobatic, cannot be trusted to save patients.

Going back to a former assertion that the history of these growths is important in preventing the accidents of operation, in no other condition is this truer than in ectopic pregnancy. Here, if we hold in mind the almost inevitable complication of a bleeding tube, we are able at once to control the bleeding, and without loss of time in searching for the point of leakage, go at once to it and so save the life of the patient. In all bowel-troubles, in any or all of these conditions, rapid and accurate repair is of the most importance. That is not surgery at all

[1] Read in the Section on Surgery and Anatomy, American Medical Association, June, 1892.

that takes chances and leaves to Nature, so-called, what is only the surrender of ignorance or inefficiency. Inflammatory adhesions do not confine themselves to the intestines, but extend to all organs, hollow and solid. Such being the case, it is evident that whatever anatomic peculiarity each organ possesses is a necessary part of our surgical equipment if we hope to deal successfully with its lesions. In dealing, therefore, with the adhesions of the various organs, our anatomic, physiologic, and pathologic knowledge is put to the test, both as to what may be sacrificed and what must be saved, and toward which line the path of safety reaches. In this connection it is at once apparent that the mere theorist, or theoretic operator, or lecturer, may have little conception or idea of the operative requirements of a given case, and is, therefore, in no position either to advise or to perform an operation. The requirements of success are both scientific and artistic, both theoretic and practical. In no point is this axiom so apparent as in the method of dealing with adhesions, which so often fuse all adjoining structures into what seems a conglomerate mass.

Mere theory, and the theorist in abdominal and pelvic surgery, would say, Separate the parts and organs with the knife; while experience and experienced operators say, Use only the finger-tip, seeking a line of cleavage, and thereby avoid the danger of wounding tissues that must be separated. The methods of general surgery here are not applicable to intestinal work. Such means can only be safely applied to post-mortem work. No violent methods are to be employed; gentle, persistent effort is alone the safe and successful means. Cultivated, delicate tactile sense, attained only by having a sharp wit at one's finger-ends, is the key to the situation. The refinement of feeling possible is only possible of conception after it has been attained.

The complication induced by removing adhesions is hemorrhage. This we must control, not by ligatures, unless exceptionally, but by packing, if necessary, and by flushings of the bleeding cavities with water as hot as can be employed without interference with or destruction of the vitality of the tissues. This expedient will frequently save patients otherwise doomed. More than one case so saved could be detailed. In advising this procedure I know that I am running counter to the views of the theorists, who see in it all manner of dangers, but practice does not sustain them, and the surgical advantage obtained by the hot-water flush is indisputable. This is especially true in patients exhausted from any cause whatever. Irrigation is then a real requirement after any operation incident to purulent or other inflammation in the pelvis or abdomen.

In all suppurative and inflammatory abdominal and pelvic disease, the line of treatment briefly should be as follows:

First remove the diseased organs; then carefully flush the parts free of débris; and lastly drain carefully, thereby assisting the economy to rid itself of accidentally retained shreds and clots. After the adhesions have all been overcome, careful examination of the hollow viscera is to be made, or, indeed it were a better practice, to examine all doubtful portions of intestine, and repair them as we proceed. They should be mended so as not to interfere with the integrity of the bowel in the performance of its functions. This is the rule in dealing with all other organs.

In contradistinction with the entire and careful removal of the diseased parts, we have so-called conservative methods brought into bold relief—to their disadvantage. We are counselled to puncture and drain pus sacs *per vaginam*, in order to avoid infecting the peritoneum. This is another conflict between mere theory and practice. If pus-cavities, as we find them in the pelvis, were simple, and involved but a single organ—in fact, if they were something they are not—such treatment would be commendable; but if, as in the great majority of cases, the sac is only one of a number of complications, no one of which can be punctured away, we must concede that such expedients are not conservative, but only specious devices to escape depths in surgery through which their suggestors can neither swim nor wade, and hence they flounder in their despair, seizing this and that to lead them out of their perplexity.

A single illustration or two will suffice to show the deceptive nature of such tentative operations in so-called pelvic abscess. We know by wide experience that all abscess-formation in the pelvis is in the great majority of cases dependent upon tubal or ovarian inflammation, which is rarely uncomplicated, and in the majority of cases has involved intestine, often omentum; the bowel is often perforated; the bladder is not seldom implicated. We have seen too that the appendix is not seldom bound down in the almost universal adhesions. If now there is a lesion of the bladder through which pus is just ready to escape, or is escaping, simple puncture cannot undo the mischief, and the same is true if the appendix is involved, with tube and bowel. Granting that one pocket of pus can be emptied by puncture, this will not do away with the adhesions that are often the chief seat of pain, and are a constant menace to the patient by exposing her to the dangers of obstruction. The sequelæ of many of these cases treated by puncture and drainage is often a most mournful travesty upon surgery, as witness the histories given by the operators themselves.

In a discussion before the New York Obstetrical Society, and published in *The American Journal of Obstetrics* for March, 1892, Dr. Paul F. Mundé is quoted as saying that "during the last *few years* he had opened *forty* pelvic *abscesses through the abdomen, eighteen* through the *vagina*, and four through the abdominal wall and vagina at the same time. In several cases he had punctured the vaginal wall in order to secure thorough drainage, abdominal drainage not being sufficient. In three of these cases, while drawing the drainage-tube through from the vagina to the abdominal wound, the bladder was accidentally wounded."

Consider a total of sixty-two cases of accumulation of pus in the tubes and ovaries, due to occlusion and suppuration; that dilatation of the tubes in a majority of this group "attained the size of a breakfast sausage, a banana, or a closed fist." In this group the practical surgeon can understand that vast number of serious complications following, first, the delay, and, secondly, the palliative methods of so-called treatment. Early primary sections, with complete removal of pus-sacs, would result in a mortality of *nil*. A large number of the group referred to have gone into the hands of other men for treatment. Such cases are constantly coming to me; and, well knowing how much more complicated they are, I dread them. In somewhat the same line, Dr. Mundé says: "We have boils and abscesses in the cellular tissue of other parts of the body. Why should we not have them in the pelvis?" And again, in a recent publication: "The empty *sac, lined by pyogenic membrane*, may, for an unlimited time, go on pouring out pus." The comment I would make very brief: Boils and true abscesses are not empty sacs.

Again: "We will all admit that many cases of 'pelvic abscess' in former days were really adherent pyosalpinx. I have, doubtless, punctured many a one in past days, never dreaming that it was anything but an abscess in the pelvic cellular tissue. I know better now." The comment can here be made: No longer is it a boil or an abscess in the cellular tissue.

"One of the great problems in my experience," says Dr. Mundé, "has been the sinus that is liable to remain after opening the abscess. I am sorry to say that I know of no sure way to prevent or cure them as yet. I have enlarged the wound over and over again, scraped them, cauterized them, punctured through into the vagina, and run drainage-tubes through, hoping the opening would close from above downward, but all of no use. I have, I suppose, a dozen women walking about this city now who are wearing different sorts of drainage-tubes. I would like to have some gentleman tell me how I can prevent these sinuses in the first place, and, in the second place, how I can heal them up." In the interest of the patient, the best thing to do in such cases—in fact, in all cases in which we don't know how—is not to attempt to do the operation, but send the patient to someone who, first, understands the pathology; and, second, the surgery. To cure these sinuses, remove the remaining diseased tube and ovary. This will do away with the necessity of "walking around wearing drainage-tubes"—a very uncomfortable interference with locomotion.

A BRIEF SUMMARY OF THE CLINICAL HISTORY AND TREATMENT OF TWO THOUSAND AND TWELVE CASES OF ALCOHOLISM, OF WHICH EIGHTY-SEVEN WERE MANIACAL.[1]

BY THOS. S. LATIMER, M.D.,
OF BALTIMORE.

IN the spring of 1891, at a meeting of the Johns Hopkins Hospital Medical Society, I reported 958 cases of alcoholism occurring at the Baltimore City Jail, between April 11 and December 30, 1890, of which 40 cases were of *mania à potu*, with an average duration of mania of forty-eight hours.

In these cases no distinction was made between *mania à potu* and delirium tremens. They were simply cases of mania due to alcoholic excess, accompanied in most instances by hallucinations of abhorrent nature, with tremors, great feebleness, loss of appetite, vomiting in many cases, and inability to sleep. In the non-maniacal cases, all of the symptoms related were uniformly present (including tremor) except the mental disturbance. All were treated with potassium bromide; the maniacal cases with thirty-grain doses every two hours, and the non-manical with the same dose at intervals of four hours. No addition was made to this treatment, except in three or four cases in which ten drops of tincture of digitalis and five grains of ammonium carbonate at intervals of three hours were also given; all recovered.

Since reporting these I have had opportunity to observe in the same institution 1054 additional cases, of which 47 were maniacal. This report, therefore, may be said to be a brief history of the gross clinical features and treatment of 2012 cases of alcoholism, of which 87 were maniacal. No attempt is here made to discuss the pathology of alcoholism, or any of the symptoms, except those directly connected with the debauch in the habitual drinker. No reference is therefore made to symptoms presumably due to persistent hepatic, renal, or peripheral nerve-lesions.

Nearly all of these patients were arrested for

[1] Read at the Seventh Annual Meeting of the Association of American Physicians, held at Washington, May 24, 25, 26, 1892.

drunkenness and disorderly conduct. They were technically called "peace cases," to imply that they were arrested for breaking the peace. A majority of them were also what in the jail are called "regulars," from the regularity with which they were returned after very brief absence. Two noteworthy facts are contained in the foregoing statement:

1. The cases were all drunk when arrested, and many of them had not yet become sober when brought to jail.

2. They were cases of almost continuous drunkenness, culminating at short intervals in a severe debauch, leading to some act of violence, or to a condition of drunken stupor, in which they were picked up on the streets quite helpless and almost or quite unconscious.

It was also quite common for my hospital steward to say, "Doctor, this man, or woman, is a chloral-fiend," or an "opium-fiend," or a "cocaine-fiend." Indeed, the cases were quite indifferent as to the particular intoxicant, using one or the other as chance might determine. All used some form of alcohol when obtainable, but many were habituated to the use of other intoxicants of the class mentioned. This fact primarily determined the choice of the remedy uniformly directed.

It will be observed that here was a particularly unfortunate class of cases to treat. All, even though young in years, were old sots; many had had numerous attacks of *mania à potu;* many were addicted to the use of intoxicant drugs; many were the subjects of chronic alcoholic lesions, and of other loathsome and enfeebling diseases indirectly connected with their mode of life. They were, as a class badly fed, badly clothed, and badly housed, when not in jail or in the almshouse, and certainly no luxuries were furnished them at either of these places. Almost without exception, even with those that were not at any time delirious, they were without desire for food, often nauseated, sleepless, full of pain, muscular and articular, tremulous in tongue, hands and legs, and full of nameless terror.

In no single instance that I remember was the appetite for stimulants lost. Almost invariably the victims begged piteously for drink, which in no case was given them.

The jail-fare consisted of weak coffee, with coarse brown-bread for breakfast; some kind of soup, not very rich, with plenty of brown-bread and a chunk of poor meat that had been boiled with the soup, for dinner; no supper.

The cases slept in locked cells on sacks of straw on iron bedsteads without blankets, even in the quite cool weather of spring or fall. No pneumonic or pleuritic complications ensued from this exposure.

The second series of 1054 cases, of which 47 were maniacal, presented substantially the same history, were treated in the same manner, and with the same result. Besides these, two fatal cases occurred. In one instance, the patient was brought in after my daily rounds, in a condition of alcoholic coma, and died before I saw him. He was supposed by the officers of the jail to be in that heavy drunken sleep so common with these subjects, and was left to sleep off the effect of his potations without having been given anything whatever. He was found dead in his cell in the morning, apparently without having recovered consciousness. Whether this was a purely alcoholic effect, or if he had taken also, or alone, an overdose of chloral or morphine, or whether it was uremic coma, cannot be said, as I did not see him during life, and no post-mortem examination was permitted.

The second fatal case also came in in the evening after my rounds. He was said to be quite drunk, but was able to walk to his cell, which was on the sixth tier. He became somewhat delirious in the night, but not sufficiently so to make the night-officer think it worth while to transfer him to a cell on the ground floor, where all cases with mania are kept. In the morning, when his cell was opened, he sprang over the railing and fell to the stone pavement, receiving such injuries as to cause his death within half an hour.

Neither of these deaths can therefore be fairly charged to the plan of treatment, nor are they included in the 87 cases of *mania à potu*, since, as I had not seen the one before death, or the second before the fatal injury, I am unable properly to classify them. In the second series of cases 4 were characterized by great mental excitement, noise, and violence, without terrifying delusions. They, like all of the rest, had been drinking up to the time of arrest, and were given no alcohol after arrest. Of the second series 13 (of 47) were admitted with delirium tremens, and in the remainder (34) delirium developed after admission—in one case as late as seventy-two hours after. In no case did the delirium last more than five days. The average period at which these patients were enabled to do some kind of light work was about two days after treatment was begun; they were not then in such condition as to be declared convalescent, or, if they had been in private practice, to be allowed to leave the house; but here, where they were under constant observation, and where no opportunity to obtain drink existed, they were allowed to do such work as they desired, and all drugs were then generally stopped. Usually on the second night, but often not until the third, they slept fairly well; and by this time they also began to eat with apparent relish the coarse prison-fare. Food was offered them at each meal, but no attempt was made to urge it upon them if inclination did not prompt them to eat. In a very

few instances, milk, eggs, light bread and tea were substituted for the regular prison-fare, but these were seldom taken, and were usually withdrawn when appetite returned and a good sleep had been had.

No distilled or fermented drink was given in any one of these cases—no drug but potassium bromide, except in a few instances, in which great cardiac weakness prompted the use of tincture of digitalis (ten drops) and ammonium carbonate (five grains), or occasionally in very noisy subjects, in which morphine (one-fourth grain), and atropine (one one-hundredth grain), were administered hypodermatically, at night. Thus, it is seen that in 2012 cases of chronic alcoholism with acute explosions, 87 of which were maniacal, under circumstances of the most depressing character, all did well without the use of alcoholic stimulants. My conviction is strong that it was to the withholding of the alcohol, rather than to the administration of the drug, that the good results obtained were primarily due. No restraint, further than keeping the patients in a locked cell while delirious, was exercised. The patients walked their cells incessantly, and often destroyed the bedding in pursuit of imaginary enemies; but as it was of but little value they were allowed to do so, rather than bind them in bed, or even secure the hands. As the patients were usually alone at night, in a dark cell, I found that when they were bound it added greatly to their terror, and intensified the maniacal symptoms. I am moreover convinced that the unceasing walk, with its resulting weariness, tended to the induction of sleep at an earlier period than would otherwise have been the case. In no instance, beyond a few slight bruises, did any harm result from the absence of bonds. I have not observed that alcoholics are ever disposed to injure themselves. When injury is sustained it is in flight from imaginary evils, or in struggling to obtain drink. All attempts to secure the patient in bed, to bind or muffle the hands, are unnecessary. If he is securely locked in a cell, or by himself in a room, made bare of all superfluous articles, he is unlikely to harm himself. Friends or attendants within call or sight reassure him when his hallucinations are terrifying, but he needs no restraint from them, and may be allowed to wander about his apartment without let or hindrance, with advantage to himself, provided the windows are secure.

I have treated a number of cases of delirium tremens in private practice and in hospitals during the period covered by this record, but not with such results. Fatal cases are not uncommon in hospital, and almost as frequent in private practice. This I believe is mainly attributable to the fact that neither at home nor in a general hospital is it possible to withhold stimulants or such drugs as morphine and chloral, from consideration of other inmates of the home or ward. It must be remembered, however, that cases are usually carried to hospital for some disease-complication, whilst the merely drunken and disorderly are taken to police-stations and thence to jail.

Before closing this short report it may be well to add that nearly all of the cases considered were committed to jail for thirty days; this brief period of enforced abstinence exerted no appreciable influence on the disposition to the intemperate use of strong drink, since the cases almost invariably returned in from one to three months, and often within as many days, after release.

The study of the foregoing cases leads me to the following conclusions:

1. That the clinical phenomena attending excesses in the use of alcohol are the direct result of over-stimulation, and are not due to the abrupt withdrawal of the stimulus.

2. That though ability to swallow and retain stimulants is frequently wanting, the desire for them almost uniformly persists.

3. That alcohol in any form or quantity is unnecessary in the treatment of such cases, and is usually hurtful.

4. That the absolute and immediate withdrawal of alcohol is of the first importance in the treatment of all of the symptoms due to its excessive use, even in cases characterized by great feebleness and inability to partake of food.

5. That forced feeding is rarely necessary, and is of doubtful utility in most cases.

6. That for the protection of the patient no kind of bonds is called for, and, when necessary, for the protection of others, or for the contents of the room, they injuriously affect the mental state of the patient.

CLINICAL LECTURE.

EXTENSIVE RAILROAD INJURY; AMPUTATION —FISTULA IN ANO—PERITONITIS.

A Lecture delivered at Harlem Hospital, New York, April 20, 1892.

BY THOMAS H. MANLEY, M.D.

THE first case that will demand attention is one of extensive railroad injury of the left leg, which involves a compound dislocation of and fracture into the ankle-joint, besides a horizontal fracture through the astragalus. In fact, from the description that the house-surgeon sent me, immediately after the case was admitted to the hospital, it was conclusive that the limb must be sacrificed.

The history of the case is not without some interest and practical value; hence I will give it rather fully, as well as make a few observations on amputations necessitated by railway injuries. It is now thirty-six hours

since the injury was sustained. The patient is apparently a healthy man, twenty-three years old, with no organic disease. He says that while mounting a train in motion he was pushed off by the guard, and that the limb was crushed when he fell. The ambulance-surgeon arrived at the railway station about half an hour after the accident. He reports that he found the man bleeding very freely and in profound shock. Temporary dressings were applied; the hemorrhage was controlled, and stimulants were given. When the patient entered the hospital, though quite blanched, with a feeble pulse, he was somewhat hilarious. Great importance attaches to this feature of intoxication of the injured in railway or other accidents. But we must always be guarded in giving an opinion on this point, for we know that, particularly in cities, immediately after an injury, with the first signs of syncope, some sympathetic bystander is pretty sure to dose the patient with alcoholics, and we can see that, as in a case of this kind, when there has been great loss of blood, a small quantity of stimulant may cause great excitement.

It might be asked why we did not do a primary amputation as soon as the man entered the hospital, in order to avoid the dangers of hemorrhage, tetanus, etc. We did not for two or three good reasons. The first was because the patient would not then consent to the operation, and the next was that he was in such a state of collapse at that time that, even though there were no objection, we would decline radical measures. Exclusive of these reasons, primary amputations are now almost never resorted to in this hospital. By delay in railroad injuries of a limb, in children particularly and in the young, we can always better appreciate just how much must be sacrificed. Indeed, in not a few cases that have at first presented but a gloomy aspect the circulation has in time become reëstablished; what has at first seemed a hopelessly destroyed limb has been saved.

In railroad disorganization of a limb it is important to note that the same agency that effects the local disorganization, by its sudden, violent concussive force, also conveys a great shock to the nerve-centers or the fixed glands, so that even though our patient should safely survive amputation, other complications may arise that may invalid the patient, and though the amputation do well our patient may suddenly succumb after reaction has set in.

As to the technique of amputation, I would say that there are two points, mainly, that should always be observed, viz., to spare as much bone as possible, and so to form your flaps that they maintain their vitality until healing is complete. The usual rules set down in the text-books have but little application in amputation for traumatisms.

Our next patient comes to us with a fistula in ano. He is a man, thirty-seven years old, who always enjoyed good health until six months ago, when he commenced to suffer from piles. These were later followed by a perineal abscess, which was opened and evacuated one month ago. Since then he has had a fistula. He says that no wind or feces escape through it, and on examination with a probe and by injection no internal opening can be found in the bowel; hence we must assume that he has what is known as an incomplete external fistula. This is a good case to demonstrate how easily and safely these cases can be operated on by the employment of cocaine. It greatly simplifies the operation, so that practically no assistants are needed, the patient himself holding the buttocks apart, while the cocaine solution—no stronger than one per cent.—is injected in a radiating direction into and through the sphincter. Now the sphincter is widely dilated, the parts cleansed, and the mucous membrane mopped with the same solution, and we are ready to cut; this, you see, is accomplished without pain or inconvenience. The parts are now flushed and cleansed, the man gets up and walks into the ward, rests an hour, and goes home.

Here are two cases of peritonitis—one coming on two weeks ago, the man having been run over. There was evidence of hemorrhage into the cavity of the peritoneum. Rest, inunction of mercury, opium internally, with hot topical applications, have set him right again, and he goes out to-morrow. The other case is evidently of appendicular variety, and was sent in to me for laparotomy and appendisectomy. We did not regard an operation as necessary. Our line of treatment was essentially the same as in the other case. The man, as you see, is as spry as a kitten. He goes home to-day, after having been in the hospital just eight days.

CLINICAL MEMORANDA.

OVARIAN CYST IN A GIRL TWELVE YEARS OF AGE.

BY CHARLES F. DAVIDSON, M.D.,
OF QUEENSTOWN, MD.

ON January 5, 1892, I was called to M. H., who, her mother told me, "had a lump in her stomach." The girl was born May 19, 1880, and was, therefore, nearly twelve years old. She had never menstruated; was fairly well-developed; in good health; and had always been in good health. The mother had noticed the "lump" two weeks previously, and, as the patient had suffered with nausea, sometimes with vomiting, the mother had become alarmed, and consulted me. On examination I found an enlargement in the lower part of the abdomen, in the middle line, just above the pubic arch. To the hand it conveyed the sensation and was about the size of a gravid uterus at about four and a half months. The vagina was large for a child of her age; the cervix uteri was long. I suspected pregnancy, and gave a tonic as a placebo, and directed the patient to take plenty of out-door exercise. I saw her several times in the course of the following week, without being able to determine the exact nature of things. On January 21st I gave her chloroform, and made a thorough examination. I found that the lump was rapidly increasing in size, and that the patient had begun to lose flesh. I now excluded pregnancy, and diagnosticated ovarian tumor. On account of the rareness of ovarian growths in the young, on January 22d I took Dr. Corkran, of Centreville, Md., to examine the case with me. After a careful examination, under chloroform, he concurred in my diagnosis, and we advised an operation at once. After thinking the matter over for twenty-four hours, her parents—illiterate persons—refused to allow of operative interference, saying that they would rather the child should die. The tumor steadily increased,

and, by February 27th, entirely filled up the lower part of the abdomen. Cough became most distressing, and the lower limbs much swollen. On March 19th the girl died, being just eleven years and ten months old.

I requested and obtained permission to make a post-mortem examination. On opening the abdomen I found a multilocular ovarian cyst, firmly adherent to the peritoneum. Introducing a trocar I drew off about a gallon of fluid of the consistence of syrup. On account of the firm adhesions, the tumor was with great difficulty removed. It had a pedicle, about two inches long, originating from the right ovary, the left ovary and uterus being perfectly normal. The small intestine for a distance of eight inches was bound to the upper surface of the cyst by firm adhesions. I punctured several more cysts, and collected another gallon of fluid of the same sort as that found in the cyst first punctured; then the solid part of the tumor weighed twenty and a quarter pounds. All of the other organs were normal, except the spleen, which was very soft.

The case reported is particularly interesting for two reasons: First, the age of the patient, and, second, the very rapid growth of the tumor.

Scanzoni records 97 cases, of which 70 were from eighteen to forty years old; Chéreau, 230 cases, of which 133 were from seventeen to thirty-seven years old; Lee, 135 cases, of which 82 were from twenty to forty years old. Of Scanzoni's, 5 were between fifty-five and sixty.

In the *Medical Press and Circular* for March 26, 1873, a case is reported in which ovariotomy was successfully performed on a child six years old.

Mr. Safford Lee collected statistics as to the duration of the disease in 123 cases not subject to curative surgical treatment: In 38 the duration was one year; in 25, two years; in 17, three years; in 10, four years; in 4, five years; in 5, six years; in 4, seven years; in 3, eight years; in 17, from nine to fifty years.

Judging from the increase in the size of the tumor after I saw it, it could not have been growing more than six weeks previously; the patient died in less than eleven weeks after I first saw her. I have not found a case in the literature of the subject that pursued so rapid a course. As for the age of my patient, there have been cases as young or younger, but they are exceedingly rare.

A FATAL CASE OF THROMBOSIS OF THE LEFT MIDDLE CEREBRAL ARTERY.

BY EDWARD A. BALLOCH, M.D.,
OF WASHINGTON, D. C.

AT half-past one on the morning of April 18th I was hurriedly called to Mrs. C., a widow, white, sixty-five years of age. When I reached the house I found her *in articulo mortis*, and she died within three minutes after my arrival.

Upon inquiry, I learned that she had always been a healthy, vigorous woman, but that for the last five or six years she had frequently experienced a sense of numbness in the right hand and arm, and some confusion of sight in one eye (which one I could not definitely ascertain).

On the day preceding her death she had seemed more than ordinarily cheerful and strong, and had gone to church three times. Sometime after midnight, her granddaughter, a child of twelve, who slept in the same room with her, was awakened by an inarticulate sound emanating from the throat of her grandmother. The child screamed and aroused the family. When they reached the room Mrs. C. was found to have vomited freely and to be unconscious. The stupor continued until death.

I also learned that the mother of the deceased had died from "paralysis," after an illness of three days. One son presents an arrest of development in the left arm, due to paralysis occurring when he was six months of age.

An autopsy was performed April 18th, 11 A.M., ten hours after death, by Dr. D. S. Lamb. Fluid was found in both pleural cavities, and there was moderate edema of the lungs. The heart was normal as to size, thickness of walls, and condition of valves. The abdominal viscera were normal, the stomach being perfectly empty. The dura mater was adherent to the skull-cap. The pia and arachnoid were injected. The choroid plexus was the seat of large cysts. The arteries at the base of the brain were extensively atheromatous. In the left Sylvian artery was found a firm, red clot, completely plugging the vessel for one-third of an inch beyond its origin. The pons and medulla were normal.

Remarks.—Death from thrombosis of the Sylvian branch of the middle cerebral artery is not common. The anastomoses between it and the other cerebral vessels are usually so free as to allow of the ready establishment of the collateral circulation. In this case the probable explanation of the fatal termination is as follows: After a day of more than usual excitement and action, there was at night a corresponding reaction and relaxation of the vital forces. The circulation became sluggish and stagnation occurred in the atheromatous and narrowed vessel, and the heart had not force enough to drive sufficient blood through the remaining vessels, which were diseased and lessened in caliber, and death accordingly resulted from acute anemia of the brain. The pulmonary edema was coincident and passive only.

EXPULSION OF A GALL-STONE OF GREAT SIZE.

BY P. C. WILLIAMS, M.D.,
OF BALTIMORE, MD.

EARLY in March of this year (1892) I was called to see an old lady, seventy-two years old, who was suffering from an attack of cholera morbus, caused by imprudence in diet. The pain and diarrhea were soon relieved, but the vomiting persisted. After a few days the old lady vomited fecal matter in great abundance. This, of course, led me to suspect intestinal obstruction, and after careful investigation I discovered in the ileo-cecal region a well-defined oval tumor, about two inches in diameter. I inferred that this tumor was an intussusception of the bowel produced by the prolonged vomiting.

On several occasions I had relieved cases of intussusception by giving large doses of chloral, and keeping the patient profoundly under its influence for from thirty-six to forty-eight hours, during which time the constriction of the bowel became relaxed, and the intussusception

was relieved. Recalling these cases, I gave large doses of chloral and morphine, which were promptly vomited. I then administered an enema of thirty grains of chloral, and two drams of fluid extract of senna every two hours.

This treatment produced profound sleep, and at the end of thirty-six hours my patient was relieved by the passage of an immense gall-stone per rectum. The stone was a *smooth cylinder, one inch and five-eighths long*, with a diameter of *one inch and one-eighth*, and a circumference of *three inches and five-eighths*. Both extremities of the cylinder were smooth and spherical.'

After the passage of this stone the old lady rapidly recovered her health, and is now better than she has been for several years. This case and its fortunate termination were of great interest to me.

Upon inquiry I ascertained that last July (1891) this lady had a very severe illness at Atlantic City, which was thought to be due to peritonitis. From this attack she slowly recovered, but continued in delicate health until she came under my care for the first time last December (1891) with an attack of "grippe." She soon rallied from the "grippe," and in March (1892) again came under my care as described.

I have no doubt that during her illness at Atlantic City the gall-stone found its way by ulceration of the gall-bladder into the intestine, and gradually passed down without special symptoms until it reached the ileo-cecal valve, where it was arrested and caused the fecal vomiting that disclosed the true nature of her sickness.

The points of special interest in this case were: First, the great size of the stone—the largest I ever saw; second, its prompt and safe expulsion through the valve under the prolonged use of large doses of chloral and senna.

THERAPEUTIC NOTES.

Paralytic Obstruction of the Intestine Relieved by the Constant Current.—SEMMOLA (*Internationale klin. Rundschau*, 1892, No. 16, p. 641) has reported the case of a man, twenty years old, of nervous temperament, in whom, after the occurrence of diarrhea, symptoms of intestinal obstruction appeared; to these ischuria was added. Ordinary treatment was without avail, and celiotomy was proposed. From the suddenness of onset of the symptoms of obstruction after the occurrence of diarrhea; from the paroxysmal character of the pain; from the coëxistence of paralysis of the bladder, without previous disease; and from the neuropathic tendency of the patient, a diagnosis of paralysis of the bowel was made, and the application of the constant current was recommended. The positive pole, attached to a catheter, was introduced into the rectum, and the negative pole stroked upon the abdomen in the course of the colon. The applications were made for from eight to ten minutes thrice daily. The symptoms gradually improved, and, after the ninth application, the bowels were spontaneously moved. In the course of ten days the patient was completely restored to health.

The Treatment of Pneumonia.—From an extensive study of the mortality of pneumonia under different modes of treatment, REED (*Therapeutic Gazette*, Nos. 3 and 4, 1892) concludes that water, locally applied, either as the wet-pack or as the bath after the method of Brand, is the most efficient single therapeutic measure for acute pneumonia. In the first stage of the disease, veratrum viride or aconite can accomplish more than any other drug; and in the second stage the same is true of digitalis. A combination of one of these cardiac sedatives with opium and diaphoretics constitutes a safe and successful internal treatment in the first stage, being capable of aborting the disease if the administration is begun near the onset and is repeated at short intervals, day and night. Venesection, though a most efficient procedure in the treatment of pneumonia of sthenic type and, judiciously employed, considerably more successful than expectant measures, is no longer an indispensable resource in managing the disease, as other remedies have been found to accomplish the same results more surely and more pleasantly.

Radical Treatment of Dacryocystitis.—GUAITA (*Centralbl. für prakt. Augenheilk.*, No. 1) recommends curetting the lachrymal canal and the introduction of a decalcified bone tube into the duct previously divided, for the relief of dacryocystitis. The tubes are prepared from the bones of the hind-legs of large turtles; the bones are treated with dilute hydrochloric acid, and the medullary cavity cleansed; the tubes are kept in absolute alcohol and a solution of mercuric chloride, 1 : 500. They should average about an inch in length, and from a tenth to an eighth of an inch in diameter. After the lachrymal canal is opened and curetted, it is cleansed with gauze saturated with a solution of mercuric chloride, 1 : 2000; the tube is introduced, and the wound is closed with one or two sutures. A compress wet with a cold solution of mercuric chloride is afterward applied. Unless severe inflammatory symptoms be present, a cure can be expected in from four to six days.—*Wiener medizin. Presse*, 1892, No. 15, p. 594.

The Treatment of Pleurisy —In a communication to the French Academy of Medicine, WEST (*Bull. de l'Acad. de Méd.*, xxvii, 3, 14, p. 484) states that pleurisy purulent from the outset is much more common in children less than twelve years old than in adults. If in a case of frank pleurisy with effusion absorption has not begun in the course of eight days, puncture ought to be made. In a large number of cases of purulent pleurisy in children, a single puncture suffices, if care be taken to prevent the entrance of air and if the wound be hermetically closed. It is scarcely possible to puncture too early.

Atropine as a Hemostatic.—DMITRIEFF (*Wratsch*, 1891, No. 50) reports the successful employment of atropine as a hemostatic in two cases of metrorrhagia. In one case the hemorrhage persisted, despite the employment of the usual remedies, including the tampon; but ceased after four injections each of gr. $\frac{1}{24}$ of atropine. The second case occurred in an anemic woman, who became syncopal, with cold extremities. The first injection was followed by improvement, and the third by cessation of the bleeding. In both cases the pupils were slightly dilated.—*Wiener medizin. Presse*, 1892, No. 16, p. 639.

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A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, Including Postage in North America.

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SATURDAY, JULY 2, 1892.

THE PULMONARY COMPLICATIONS OF INFLUENZA.

AMONG the recent valuable contributions to the subject of influenza is a lecture upon the pulmonary complications of the disease, delivered at the Pennsylvania Hospital, by PROFESSOR DA COSTA.[1] The paper is the more valuable because the author's experience with the disease is not confined to recent years. He calls especial attention to the great variation in type of the respiratory disorders encountered in different epidemics, and to the not inconsiderable variation even among the cases met with during any one epidemic.

While in some previous epidemics there was observed merely a catarrh affecting the upper air-passages, with laryngeal and bronchial involvement, but with little tendency to spread to the deeper parts of the lungs, the recent visitations have been characterized by the tendency of the morbid process to affect the pulmonary parenchyma. The chief pulmonary complication of influenza in the recent epidemics, as illustrated by a typical case exhibited by PROFESSOR DA COSTA, was an intense congestion, often, though wrongly, called pneumonia. With rapid breathing, harassing cough, and evident oppression, there was found slight impairment of percussion-resonance at the lower part of the chest, especially posteriorly, and frequently the more marked on one side, but without decided dulness or evidence of consolidation. The breath-sounds at the lower part of the chest were feeble and ill-defined. There were numerous fine râles. The expectoration was rather tenacious, but not decidedly viscid, and not rusty.

The attack often began, as does true pneumonia, with chill or chilly sensations, which might occur early in the course of the influenza, or some days after the ordinary symptoms of the latter had been manifested. The fever subsided gradually and regularly, or gradually and irregularly, and but rarely by crisis. Crises, however, did occur exceptionally, and DR. DA COSTA reports a striking instance.

The cardiac complications added to the embarrassment of the circulation. The heart was quick, feeble, and irregular. Short systolic apex-murmurs were not uncommon, but much more general were a defective first sound and a sharp second sound. Sudden movement involved the danger of fatal syncope. A case is reported in which death resulted during an attempt of the patient to raise himself to use a bedpan. The autopsy showed a white clot, evidently ante-mortem, in the right side of the heart, extending from the auricle into the ventricle. The left chambers were empty and contracted. To the eye the muscular structure appeared normal.

The most prominent nervous phenomena were insomnia and delirium. To the latter, DA COSTA gives the name of "business delirium," because the patient's mind persistently dwells upon his ordinary occupations. This type of delirium was noticed more particularly in professional and business men. In many cases, especially in the graver, albuminuria, associated with the presence of tube-casts and other signs of actual renal involvement, was observed. The albuminuria was not persistent, but passed away with the attack. It was found in cases without delirium, and delirium was observed without the occurrence of albuminuria.

DA COSTA believes "that we are wrong in combining the statistics of 'influenza lungs' with those of pneumonia; that we are wrong in basing our treatment upon the view of their identity; and that we are doubly wrong in deciding against the value of remedies which we have learned to depend upon in ordinary pneumonia, because they may fail us in the lung disorders of influenza."

[1] International Clinica, vol. ii, second series, reprint.

It is true that there are cases in which, after death, are found appearances indicative of true croupous pneumonia, but these are comparatively rare, and the author, while he does not express a positive opinion, seems inclined to look upon the pneumonia as an epiphenomenon rather than as an essential element of the disease. Among the cases that he reports is one of croupous pneumonia following influenza, in which death resulted from pulmonary edema.

The treatment upon which PROFESSOR DA COSTA particularly relied consisted chiefly in the administration of large doses of ammonium salts, with quinine, with most carefully sustained nutrition, and in many cases with digitalis and with stimulants. Absolute rest was insisted upon; the patients were even made to take their medicine from a tube, to avoid the danger of sudden heart-failure from the exertion of rising. Digitalis is a remedy often used in a routine manner, and thus much abused; nevertheless, properly watched and used intelligently, the author attributes much value to it. Strophanthus was sometimes used in cases in which digitalis did not seem to be well borne, and strychnine was given in alternation with digitalis, or alone. In all cases in elderly persons, with atheromatous vessels, strychnine is a safer remedy than digitalis, for the latter so increases arterial tension that in one instance the brittle vessels gave way and an extensive cerebral hemorrhage resulted. Potassium iodide was disappointing, so far as any effect upon the pulmonary conditions was concerned, but DR. DA COSTA believes that ammonium iodide is worthy of large trial. Except in instances of great prostration, extensive dry-cupping was extremely useful. Poulticing or wrapping the chest in huge layers of wool and cotton renders the patient uncomfortable and hot to an extraordinary degree, interferes with examination of the chest, and exerts no beneficial influence. Only in instances complicated by pleurisy, or in lingering consolidations, would the author recommend the use of poultices.

Bleeding may produce some amelioration of symptoms in certain cases, but exerts no remedial influence. Oxygen likewise seemed to DR. DA COSTA to be devoid of curative effect, though possessed of palliative virtue. Many cases recovered without the use of alcohol; on the other hand, alcohol was often used freely, and seemed especially useful in cases complicated by true lobar pneumonia.

Nitro-glycerin was beneficial in cases in which the element of congestion was marked. Strophanthus was used coincidentally to steady the heart. Of hypnotics, paraldehyde, sulphonal, and hyoscine were the most dependable, hyoscine being the best of these.

In cases with rapidly extending bronchitis and edema, no certain treatment could be depended upon, yet a case is related in which recovery took place notwithstanding the desperate nature of the symptoms. So far as treatment may have influenced this case, recovery seemed to be due to persistent dry cupping and the free administration of ammonium salts, quinine, strychnine, and stimulants.

Not the least element of value in the observations of DR. DA COSTA, here abstracted, is their judicial tone. Representing the matured conclusions of an unusually well-qualified observer upon matters concerning which considerable differences of opinion have been expressed, they are of permanent importance, and THE NEWS has, therefore, so far departed from its custom as to present them in this column.

IMPOTENCE.

THE NEWS has received a letter from an individual who signs himself "A Sufferer," who inquires "for a friend," if impotence is curable, and if the confident claims of the quack circular are to be looked upon as eternal truths.

This communication brings to mind a large class of patients difficult of treatment, and we cannot help feeling that many of them wander off to quacks because of lack of improvement at the hands of the general practitioner, who is too likely to rely on the oracular utterances of the clinical index, and settle on the routine of sexual stimulation as the proper course to pursue.

The causes of impotence are almost as many as the causes of ill-temper, and the treatment must be suited to each particular case. In view of the fact that in a recent work on circumcision the author confuses impotence and sterility, it may not be unprofitable to discuss the modern views upon these subjects.

By impotence is meant an inability to successfully perform the sexual act. This may result from some congenital malformation, or distortion of the sexual organs, as great hypospadias, absence of the testicles, or excessive brevity of the penis; or some pronounced organic disease, as testicular atrophy, varix

of the dorsal vein of the penis, calcification of the fibrous septa of the penis, etc. All cases belonging in the foregoing class are designated as examples of organic impotence. Many of them are incurable, but some may be relieved by operation.

Impotence may result from a mental condition when the organic apparatus of erection is entirely normal. It may arise from mental preoccupation, exhaustion, worry, personal aversion, bad temper, excessive anxiety to play a creditable part (as on a wedding night), or a fear of failure, and a host of other conditions as various as the emotions of man.

This condition may be occasional or persistent. It is purely a morbid mental state, and treatment to be successful must be directed to the mind. The accidental or occasional cases of psychic impotence need to be reassured, and often given a placebo. The persistent cases require very careful guidance. JOHN HUNTER had a patient, recently married, who was unable to have an erection. HUNTER gave some indifferent drug, directed the man still to sleep with his wife, but under no circumstances to have intercourse. These instructions were violated almost as soon as given. Again, impotence may be symptomatic of some other diseased state, as opium or chloral eating; bromism, and chronic poisoning by lead, arsenic, and mercury; injuries and diseases of the cerebro-spinal nervous system, as concussion, spinal meningitis, locomotor ataxia, and advanced paresis, and of such conditions as albuminuria and diabetes. In not a few cases of symptomatic, as in other forms of impotence, the loss of power is preceded, and in some cases accompanied by inordinate desire. Its onset is likely to be marked by imperfect erections and premature discharges, and its treatment is that of the causative disease.

An enormous majority of the impotent is composed of those who labor under loss of tone. To the late PROFESSOR S. W. GROSS belongs the credit of conclusively proving that "impotence is generally produced by subacute or chronic inflammation and morbid sensibility of the prostatic urethra, which are frequently associated with stricture, and which are usually due to masturbation, gonorrhea, sexual excess, and constant excitement of the genital organs without gratification of the passions." This irritation of the prostatic urethra overstimulates and exhausts the genito-spinal center in the lumbar cord, the erections become feeble, and the ejaculations premature or belated, and, finally, erection may be impossible, desire may be exaggerated, absent, or perverted; nocturnal seminal emissions or diurnal losses are likely to ensue, and spermatorrhea may develop. There is a whole train of uncertain bodily symptoms. Hypochondria appears, and occasionally insanity.

Proper treatment, if inaugurated before insanity occurs, is almost always successful. Stricture and hyperesthesia are relieved by steel bougies (up to No. 35 French), the meatus often demanding division to admit the larger sizes. In many instances bougies alone remove the chronic inflammation, while in some they relieve, but do not cure. In this last class cold-water currents may be thrown through the return catheter; inunctions of ichthyol and lanolin, or of mercurial ointment, are made to the perineum; blisters are used on the perineum, injections of silver nitrate, or other astringents, are thrown in by the deep-injection apparatus. Seminal losses are controlled by bromides and atropine, with hot hip-baths, hyoscine hydrobromate, or camphor monobromate. After the seminal losses cease, and the hyperesthesia is abolished, it may be necessary to give a tonic course of treatment. Strychnine and dilute phosphoric acid, or strychnine, arsenic, iron, and quinine, may be employed.

We have in the foregoing remarks only hinted at the treatment of these troublesome cases, but we hope that we have shown enough to remind the general practitioner that to cure impotence requires some knowledge and some skill, and a larger armamentarium than a syringe with zinc sulphate and a bottle containing the acid phosphates, or cantharides, or potassium bromide.

SELF-REFUTED.

THE following extract from an editorial article in the *Practitioner's Monthly* for May, 1892, opposing the ground taken by THE NEWS and the American Medical Association against the use of secret nostrums, furnishes so complete a refutation of the other portions of our contemporary's argument, that, despite its numerous misstatements of fact, we cannot refrain from printing it verbatim:

"The arbitrary test proposed by our cotemporary, 'that the full process (of manufacture) is of public record, or the true and exact composition of the finished product is made known,' is palpably absurd, since to do this would give away the secret. Antipyrin is said to be subject to chemical analysis or test. So are phenacetin and sulphonal subject to chemical analysis or test, but how much wiser is anyone as to the process of manu-

facture? Someone gave away the secret of manufacture of acetanilide, and the consequence is that antifebrin has ceased to have a market value. Does any sane man suppose that if the process of manufacture of antipyrin or any of the other of these so-called proprietary preparations were actually known, that they would not be put on the market under another name, the same as acetanilide has? What better illustration is needed than the one just cited of acetanilide, which sells for fifteen cents an ounce, and antifebrin for one dollar?"

What an excellent weapon our opponent has unwittingly placed in our hands!

PRESCRIPTION-WRITING EXTRAORDINARY.

À PROPOS of the interest taken of late by the manufacturers of pharmaceutical preparations in the education of physicians, we beg to call attention to a recent issue by a Philadelphia firm of a *Therapeutic Reference-Book*, which, it must be admitted, contains some valuable information for physicians; but in a section on prescription-writing the author has evidently essayed a department which he should have left untouched, since even the highly valuable aid of abbreviation fails to cover his utter ignorance of the rules of Latin grammar upon which prescription-writing is based. Thus we have the following:

℞.—Potass. Cynanide.
Potass. Brom.
Ext. fl. Pru. Virg.
Syr. Simple et.
Aqua. Dist. q. s.

Again—

℞.—Hydr. Chlor. Mit.
Soda Bicarb.
Pulv. Cinnamom.
Sach. Lact.
Mix et. divide *into* charta*e* No. xii.
S.—One every two hours.

Had the writer been satisfied to put the whole into good English we should not have complained, but the pitiable conglomeration of English and Latin which is placed before the physician with a view to his *instruction* should be exposed. We are not averse to learning from anyone, but we do protest against the confiding physician who happens to be ignorant of Latin being taught stuff, the adoption of which must excite a smile in the well educated apothecary who compounds his prescriptions.

To Relieve Headache.—WEISS (*Prager med. Wochenschr.*, No. 15, 1892, p. 159) has observed that temporary relief from headache could invariably be afforded by pressure upon the abdomen at a point midway between the umbilicus and the ensiform cartilage, the mechanism of which is thought to be dependent upon compression of the aorta.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Forty-third Annual Session, held at Detroit, June 7, 8, 9, and 10, 1892.

SECTION ON DISEASES OF CHILDREN.

FIRST DAY—JUNE 7TH.

The Chairman, DR. E. F. BRUSH, of Mt. Vernon, N. Y., in opening the session, read a paper on "Scorbutus in Children." He stated that man is the only animal that not only kills his food before eating it, but makes it *absolutely* dead and, if possible, sterilizes it. The chemist of the day would make us believe that man needs for nourishment only so much nitrogenized and so much non-nitrogenized matter; that a little jar of beef-extract is far superior to ten pounds of meat as found in nature; that milk that has been skimmed, dried, powdered, and thoroughly sterilized is preferable in every way to fresh milk from Nature's laboratory. The statement has recently been made that when the chemist had reached his goal, armies would be able to carry in a small vial supplies for several days, instead of the load of meat and bread they are now obliged to carry. The peasant in the famine-stricken countries, the sailor and soldier when deprived of fresh living food, are all subject to scurvy. Dr. Brush expressed the opinion that the constant use of dead food for infants is wrong; patent baby-foods should be absolutely excluded, and the young thus be guarded from many evils. No greater field exists for the pediatrist than the study of infant feeding.

DR. F. S. PARSONS, of Boston, read a paper entitled "Ought Infants to be Washed Immediately after Birth?" He stated that all wild animals wash their young directly after birth. The human mother, however, cannot perform such duties in the manner of the lower animals, whose offspring, moreover, are covered with hair, necessitating simply the drying of a wet surface; but the child with practically no hair on the body is ushered from an aqueous solution at a temperature of about 100° F., to an aërial temperature of from 20° to 30° lower. Apparently to guard against this sudden cold, Nature has placed a sebaceous covering, which, if allowed to remain, would protect the child from the chilling influences of the reduced temperature. Dr. Parsons, however, does not so much object to the washing of the child as to the manner in which it is generally done, and which so often leads to catarrhal troubles, varying from simple snuffles to broncho-pneumonia. He recommends a little skirt with sleeves and hood, made of some soft unirritating material—for example, Canton flannel—in which the infant should be placed, after being quickly rubbed with pure hog's lard. Here it should remain for four or five days, when it would become accustomed to the lowered temperature, and could with much more safety be washed; but as this would not satisfy the average mother, he would advise covering the head and body with lard, then quickly placing the child in a tub of water at about 103° F., there cleaning and washing the body with a soft linen cloth. He has never seen a child so treated suffer from catarrhal troubles in any way.

In the discussion that followed the reading of the paper, DR. ULRICH, of Pennsylvania, stated that he had long been convinced that there was too much washing of young infants; the nurse seems often only to know that the child must be immediately washed and dressed; he thought that the children lived in spite of the nurses. Soap and water would not touch a heavily-coated child; only oil would do this. He would not dress the child until the day after labor. The inevitable flannel bandage, he thought, was generally rolled too tightly, and put on regardless of the weather, in hottest August as in cold December.

DR. PRESBERY, of Taunton, Mass., felt that he would be greatly criticised if he left a child go twenty-four hours without washing; he agreed that infants are too much washed; the sebaceous coat is applied for the protection of the child *in utero*, and is not intended to remain after birth. He would have the child immediately washed and put in dry absorbent material.

DR. BROWN, of Illinois, thought the people of his State would insist on the band as necessary to hold the umbilicus in place, but he used a linen band in summer.

DR. WIRT, of Indiana, put the band on very loosely, and put on as little clothing as would keep the child warm; he would wash the child twice a week, or at most every other day.

DR. BRUSH, of New York, expressed the thought that the child often suffers more than the mother, and that the crying is a provision of Nature to open the lungs, into which, sometimes, some of the amniotic fluid is drawn, causing a bronchitis, which might be charged to the first bath.

DR. PARSONS closed the discussion by adding that he did not so much object to the early washing as to the manner in which it was done. He would have the child washed, say, only once a week, after the initial bath. He did not employ a band of any kind, believing that they often caused hernia; instead he used dry cotton, held in place by adhesive plaster, which could be easily removed, and after that he employed nothing.

DR. W. S. CHRISTOPHER, of Chicago, read a paper on "Starvation-neuroses." He called attention to the important etiologic relation that malnutrition of the tissues generally bears to the development of various functional nervous diseases and the neurotic symptoms that accompany many other pathologic states.

Chorea, convulsions, laryngismus stridulus, various nervous affections of the bladder, and many minor pathologic nervous phenomena are very frequently starvation-neuroses, and are amenable to treatment corrective of defective nutrition. Inherited tendencies and auto-intoxication are frequent etiologic factors in these conditions, but starvation is a still more frequent one.

DR. BROWN, of Indiana, stated that he does not think that the condition is so often one of general malnutrition of the body as one of special nerve malnutrition.

DR. WATSON, of New Jersey, thought that less attention should be paid to medicines and more attention to diet and pure air.

DR. MARTINETTE, of Baltimore, stated that he had never seen the diarrhea of rickets in winter—a fact indicating that so-called rhachitic diarrhea is often due to other causes.

The discussion was closed by DR. CHRISTOPHER, who had stated that he had often seen the diarrhea in winter.

SECOND DAY—JUNE 8TH.

Morning Session.

DR. F. E. WAXHAM, of Chicago, read a "Report of Four Hundred Cases of Intubation." He stated that he felt called upon to report his cases in consequence of the many unfavorable comparisons of intubation with tracheotomy. The results that he has obtained might well make anyone an enthusiastic supporter of the operation. The following is a record of his cases:

	Cases.	Recoveries.	Per cent.
Under one year	12	4	33.33
One year	52	12	23.07
Two years	70	18	25.71
Three "	69	27	39.10
Four "	79	30	37.97
Five "	39	18	46.15
Six "	25	7	28
Seven "	25	10	40
Eight "	10	6	60
Nine "	6	3	50
Ten "	5	2	40
Eleven "	1	1	100
Twelve "	2	0	0
Thirteen years	1	0	0
Fourteen "	1	0	0
Twenty "	1	0	0
Forty-three "	1	1	100
Sixty "	1	0	0
In all	400	139	34.75

The cases all occurred in private practice. In the first 100 cases there were 27 recoveries; in the second, 34 recoveries; in the third, 40 recoveries; and in the fourth, 38 recoveries; the improvement of instruments, improved methods of feeding and management, and the almost universal administration of mercuric chloride after the first 100 cases, undoubtedly accounting for the larger percentage of recoveries. Failure may be ascribed, firstly, to the difficulty of the operation; secondly, to lack of judgment as to size of tube; thirdly, to the fact that patients are allowed to die from obstructions below the tube; and, fourthly, to lack of careful nursing and feeding. In each large city a few specialists should perform this delicate and difficult operation so as to become expert therein; in country practice tracheotomy is advised in its stead. A tube too large to be expelled only invites disaster; the attendant should be instructed to invert the patient in an emergency, when, if the tube is not expelled, the finger should be forcibly pressed against the trachea from below. A hoarse, squeaking cough, or a flapping sound, means membrane below the tube, which should be instantly removed to allow the cast to be coughed up; the patient should be fed in the inclined position; insufficient nourishment is often given. Dr. Waxham has confidence in the steam atomizer, iron, mercuric chloride, and hydrogen dioxide.

DR. HUBBARD, of Ohio, thought that a child having a much greater expiratory than inspiratory power could always expel a tube, but thought that children are sometimes strangled by sucking into the tube disintegrated membrane, or the foam from the use of too concentrated hydrogen dioxide; this latter he had seen.

DR. S. P. DUFFIELD, Health Officer of Detroit, opened

the general discussion on diphtheria by an interesting consideration of the prophylaxis of the disease. He felt that the present mode of quarantine by placarding a house almost useless, as, when the physician was gone, the inmates mingled promiscuously among their neighbors on the street cars, at the grocery, etc. Cities should have cottage-hospitals outside of city limits; say twenty acres should be divided into five acres each for smallpox, diphtheria, typhus, and scarlatina, separated from one another—where the convalescents might enjoy themselves. He would advise small, cheap, two-roomed cottages, where mother and child could be isolated, the city providing provisions and treatment, etc. This he thought the cheapest, as well as the most effective quarantine.

DR. HANNAN, of Hoosac Falls, N. Y., stated that in his city of 8000 inhabitants the little ones of the rich and poor were dying on all sides, the treatment this year seeming to have no effect whatever. Last year the disease was almost harmless, none dying; this year nearly all die. In one house, containing seven children, two took diphtheria: one lived, and one died; the other five, though they mingled every day in their very small house with the sick ones, did not take the disease.

DR. JENNINGS, of Detroit, spoke of the therapeutics of the disease. It is essential first to know what diphthera is. He felt certain that at the outset it was a purely local trouble, followed by marked constitutional symptoms. Local treatment is of the utmost importance, and, if employed early and vigorously pushed, little constitutional treatment would be needed. No remedy is a specific. It does not so much depend on which local antiseptic is used as on the manner in which it is applied. Dr. Jennings believes that spraying is overrated. He would thoroughly flush the nasal cavity and the pharynx, and treat them as any surgically infectious wound that could not be disinfected with a spray. He preferred hydrogen dioxide and mercuric chloride.

DR. BROWN, of Indiana, felt that there was something in one constitution that served as a soil for diphtheria which another lacked.

The discussion was further participated in by DRS. MOSHER, of Kansas City, Mo.; DUNMIRE, of Philadelphia; WHITE, of Indiana; SHAW, of Cincinnati; LONG, of Buffalo; MCDONALD, of Indiana; and DEVENDORF and DOUGLAS, of Detroit.

Afternoon Session.

The Nominating Committee recommended the following as the officers for the ensuing year: *Chairman*, C. G. Jennings, of Detroit, Mich.; *Secretary*, F. S. Parsons, of Northampton, Mass.; *Executive Committee:* W. P. Watson, of New Jersey; W. S. Christopher, of Chicago; and E. F. Brush, of New York, the retiring chairman.

DR. G. N. HIGHLEY, of Pennsylvania, read a paper on "Acute Meningitis, with Special Reference to Its Treatment," in which he strongly urged the abstraction of blood, either by leeches, cupping, or venesection, believing this superior to any drug. The bleeding should be done early, and often enough to relieve the engorgement, even though the ulnar pulse be very weak. He also strongly advised the constant use of cold to the head, and, if necessary, he at times gave morphine and potassium bromide. He reported three cases successfully treated in this way.

DR. W. E. WIRT, of Cleveland, read a paper entitled "Rickets, and the Treatment of Resulting Deformities."

DR. D. R. SHIMWELL, of Philadelphia, read a paper on "The Surgical Aspect of Rickets."

These papers and their discussion brought out the following points: That the most common cause of rickets is malnutrition (not necessarily under-nutrition) and bad hygiene. The claim that rickets is the manifestation of infantile syphilis was not sustained. The treatment advocated was healthy nutrition, strict cleanliness, and outdoor sunshine. For a hand-fed child under one year, fresh milk, with about one-third lime-water or barley-water added; older children might be given cod-liver oil, iron, the hypophosphites, pounded mutton, poached eggs, also galvanism might be used. The surgical methods necessary were also ably brought out in these papers.

THIRD DAY—JUNE 9TH.

DR. ELI H. LONG, of Buffalo, read a paper on the "Physiology of the Respiratory and Circulatory Changes at Birth, Relating to Asphyxia and Its Treatment." The paper was carefully prepared and well given, and contained many points of interest.

DR. A. HAZELWOOD, of Grand Rapids, Mich., read a paper on the "Prevention of Scarlet Fever." He favors the cottage-hospital plan of treatment on a large tract of land outside the city, where mother and child could both go, as the only way to solve the difficulty of isolation.

DR. VAUGHAN, of Ann Arbor, Mich., believes that the scarlatinal microörganism is distributed throughout the individual, and that in all cases the kidneys are affected, as the poison is eliminated by that route. The accumulation of the poison is dangerous to life. Dr. Vaughan employs elaterium and pulvis jalapi compositus. Pilocarpine is seldom to be used on account of the depression to which it gives rise. Hot or dry baths are to be preferred. The premises on which there have been cases of scarlatina should be disinfected with sulphur (three pounds to every thousand cubic feet), and washed with mercuric chloride (1 : 2000). Quoting from memory, Dr. Vaughan gave the following statistics: The average number of deaths from scarlet fever in Michigan was formerly eight hundred per annum; now it is two hundred. Formerly there were ten cases to each outbreak; now there are only two. These changes are largely due to acquired immunity, more thorough disinfection, and isolation.

DR. BRUSH closed the discussion by reading an interesting paper on "Scarlet-fever Contagion."

The meeting was closed by the reading of one of the most interesting papers of the session by DR. W. A. DIXON, of Ripley, Ohio, entitled "The Morbid Proclivities and Retrogressive Tendencies in the Offspring of Mulattoes," in which he contended that the children of mulattoes are the subjects of constitutional diseases to a much greater extent than are those of unmixed blood. Dr. Dixon's paper will be published in a future number of THE NEWS.

SECTION ON MATERIA MEDICA AND PHARMACY.

FIRST DAY—JUNE 7TH.

The Section was called to order by the Chairman, DR. FRANK WOODBURY, of Philadelphia. In the absence

of the Secretary, DR. WHELPLEY, of St. Louis, DR. F. E. STEWART, of Wilmington, Del., was appointed Secretary *pro tem.*

In the address of the CHAIRMAN, attention was directed to the evident disposition of the Association to devote more time to scientific work, and thus greatly increase the usefulness of the sections. A peculiar feature of the Section on Materia Medica and Pharmacy, is that the Association has formally invited the American Pharmaceutical Association to be represented by delegates who shall participate in its scientific work. This recognition of the high standing of representative pharmacists is a just tribute to their professional attainments, and establishes pharmacy as a department of medical science. This is a consummation of immense value to both medicine and pharmacy; and, that we have been able in any way to assist in bringing it about, should be a subject of congratulation. Its consequences upon the development of pharmacy in this country must be great and far-reaching. Biologic chemistry and practical pharmacy are closely related and should be studied together. The present aspect of medicine, speaking from the therapeutic standpoint, is largely chemical, and is mainly based upon chemical ideas. Indeed, we might almost represent health by a very complex chemical formula, graphically written, so as to express exact molecular composition. Various modifications and substitutions may take place, representing departures from the normal, more or less marked and corresponding with certain diseases or diatheses. While the researches of bacteriologists have revealed specific microörganisms characteristic of different infectious diseases, later observations serve to establish the fact that these so-called disease-germs do not so much cause disease directly by their numbers as they do so indirectly by their chemical products, which enter the blood and act as toxic agents. The important relation of pharmacy to medical practice is that it supplies chemical substances capable of acting as antidotes to the poisonous action of these agents.

DR. A. B. PRESCOTT, of the University of Michigan, read a paper on "Caffeine and the Question of its Isomerism." He considered the various caffeine-bearing plants from chemic and physiologic standpoints, and demonstrated that the fact of isomerism had not been established. Caffeine is a substitution-derivative of xanthine, the former being chemically a trimethyl-xanthine. The effects of various beverages from caffeine-bearing plants are modified by the presence of other substances, such as tannin, volatile oil, etc., caffeine not entirely producing the physiologic effects of tea or coffee.

PROF. REMINGTON called attention to the scientific foundation for the custom of simply making an infusion of tea, by which the flavoring substances and caffeine are extracted, leaving the more insoluble tannin behind.

The CHAIRMAN stated that if the statement is to be accepted that theine is different from caffeine, it will be necessary to write "theæ" after caffeine, since much of the supply of caffeine is obtained from damaged tea. Dr. Edward R. Squibb, in a letter some years ago, declared that there was no difference between theine and commercial caffeine, and threw some doubt upon the existence of caffeine, as such, in the living plant. A practical point, showing that tea is prized for something more than its alkaloidal content, lies in the fact that some cheaper grades of tea are richer in caffeine than the higher-priced teas. As regards the difference alleged to exist between the alkaloid derived from tea and that from coffee, it is possible that some of the volatile substances of the tea are not fully separated from the caffeine, and modify its physiologic action; just as piperine may owe much of its stimulating qualities to volatile substances usually associated with it.

In practical medicine, the insolubility of tannin should be remembered, and in making infusions for the astringent effects, as in antimonial poisoning, or for their action on mucous membranes, the tea or coffee should be boiled. On the other hand, when the stimulating effects alone are desired, a rapid infusion is all that is needed.

In the absence of DR. E. L. PATCH, of Boston, his paper on "Examination of Market Fluid Extracts" was read by title.

A paper on "Pharmacy at Health-Resorts," by DR. F. E. STEWART, was also read by title.

PROF. JOSEPH REMINGTON, of Philadelphia, read a paper entitled "Prescription Exigencies," which was highly practical and interesting, and led to a general discussion.

SECOND DAY—JUNE 8TH.

The discussion on the Revision of the United States Pharmacopeia was opened by PROF. JOSEPH REMINGTON, of Philadelphia, a member of the Committee on Revision. He stated that the Pharmacopeia is rapidly approaching completion and that much of it is already in type. It is believed that the work will appear before the end of this year. Some important changes have been made, the most notable being the adoption of the metric system in the formulæ. The hope was expressed that this change would be approved and supported by the members of the Section.

A general discussion followed, in which PROFS. PRESCOTT, BEDFORD, LONG, DR. CLARKE and others participated.

The CHAIRMAN opened the discussion on "An International Pharmacopeia." He stated that the adoption of an international pharmacopeia has been under consideration for a number of years. The present seems a particularly propitious time for renewing the agitation. Americans read English and Continental medical journals and books, and extracts from these, containing formulæ, are constantly reappearing in American journals and text-books. As there are marked differences in strength among different products bearing the same name (such as tincture of belladonna), and as even the ounce of water is not the same in the British and United States Pharmacopeias, an international comparative commentary upon the different pharmacopeias, containing the principal drugs in use by civilized nations, with their preparations, seems necessary. Such a work would be most convenient for reference, both for physician and pharmacist.

A series of resolutions was offered thanking the Committee on Revision for their valuable labors upon the Pharmacopeia, and requesting that in all doubtful questions coming up for decision preference should be given to those that would facilitate the creation of an inter-

national pharmacopeia. The resolutions were unanimously adopted. The subject was approved and made the order for discussion upon the second day of the session at the next meeting.

THIRD DAY—JUNE 9TH.

The following papers were read by title: "Europhen," by DR. J. V. SHOEMAKER, of Philadelphia; "Tablet Triturates and Dosimetric Granules," by DR. WM. F. WAUGH, of Philadelphia; and "Notes on Therapeutic Novelties," by DR. I. N. LOVE, of St. Louis.

The Business Committee of the Section was elected as follows: Dr. Horatio C. Wood, of Philadelphia; Dr. F. E. Stewart, of Wilmington, Del.; and the Chairman of the Section.

Dr. F. Woodbury was reëlected *Chairman*, and Dr. F. E. Stewart was elected *Secretary*.

SECTION ON PHYSIOLOGY AND DIETETICS.

FIRST DAY—JUNE 7TH.

An anticipated projection of illustrations of foods on the screen, by the Secretary, was postponed owing to the lack of solar light.

It was next moved and seconded that the sense of the Section should be formally passed upon the pending bill in Congress on "Food and Drug Adulterations," following a discussion by a more general meeting, and if possible the officers of the Association to be present.

SECOND DAY—JUNE 8TH.

PROF. C. H. A. KLEINSCHMIDT, of Washington, D. C., Chairman of the Section, read an important paper on the past year's progress in the "Physiology of the Nervous Centers." This lengthy *résumé* included the results of the more recent work, pathologic and clinical, done by European and American investigators. It considered the advances in the anatomy of the origin of the cranial nerves, the discovery of new reflexes and functions of facial motor nerves, the belief now of physiologists that all nerves are trophic, Courmount's theories regarding the functions of the cerebellum, and Richardson's theories, the chemico-physiologic theories of combustion, the action of the central nervous system.

The attractive theory of Pryor, that sleep is due more or less to a decline of destructive metabolism, received full mention, and that clinically insomnia is best treated by restoration of the balance of proper nutrition of the nerve-centers. The many recent advances in cranial-nerve origins is vastly modifying former views of the functions of the bulbar bodies, nerves of sight, and the motor nerves of the face.

The phrenic nerve is now found to be, not a purely motor nerve, but a mixed nerve; and the cervical and spinal sympathetic systems of nerves contain trophic fibers. In fact, it may be said that physiologists are coming to the view that nerve-structures and nerves cannot be so sharply divided into motor and sensory as formerly, but that all nerves are trophic and capable of both motor and sensory functions.

Brain-localizations and the progress made by Horsley and Schaefer, leading uniformly to like conclusions, were noted.

Brown-Séquard's observation that analgesic effects can be produced on wounds in any part of the body (in dogs and monkeys) lasting some days, by stimulating the laryngeal mucosa, was mentioned as being of possible clinical use in the case of man.

Among the new reflexes is one by Knapp, whereby stimulation of the back of the wrist is attended with contraction of the levator menti of the same side.

The vomiting center is proved to be located in a space five millimeters in front of the calamus scriptorius and in the deeper part of the medulla. This fact must dispose of many old theories, and demonstrates that most nerves are capable of many functions, for in this case it is merely the respiratory center acting as a vomiting center.

Among the many new and startling theories must be mentioned that of Courmount on the functions of the cerebellum. This is based upon clinical observations purely, and has attracted the great and favorable interest of Forel, who has twice recently reviewed it. This theory throws much doubt upon our former belief that the cerebellum is simply an organ of coördination. Courmount credits it with other and more important functions, upon the clinical evidence alone.

Mendel's work on the facial nerve-supply must in time undermine most of the present conceptions of facial innervation and functions of important organs.

All action of the central nervous system, according to Richardson, is due to chemico-physiologic action or "combustion"—(*a*) the slow combustion in the cerebro-spinal axis, and (*b*) the more obvious combustion in the so-called working organs represented by animal heat. The gray matter is the seat of a slow combustion, and the white matter supplies the combustion-material. The cerebro-spinal fluid has the most important function, because it is the most condensed fluid of the cerebro-spinal axis, which is not only the center for the reception of external impressions, but a true chemical and dialyzing center and the center of static combustion.

SURGEON C. A. SIEGFRIED, United States Navy, read a paper on "The United States Navy Ration," giving the history of the food-supplies and methods in use from revolutionary times to the present, the various exigencies and requirements of naval seamen's dietaries, the character of their muscular work, and the nutrient and dynamic values of the present navy rations. The scales of food-supplies included that for naval apprentices, the regular seamen, and the punishment diets. He would divide a ship's dietary into the three classes of moderate workers, hard workers, and severely hard workers, the latter to receive as much as 210 grams of protein, 175 of fat, and 650 of carbohydrates; and the other extreme, the moderate workers, Prof. Atwater's scale (or standard American) of 125 grams each of protein and fat and 500 of carbohydrates. The average modern war-ship's company is composed of 10 per cent. moderate workers, 65 per cent. hard workers, and 25 per cent. severely hard workers—firemen, etc. Greater satisfaction could probably be secured in naval rationing if the common adaptations and economic methods in use in some foreign navies were applied in ours, and the food-supply were graded according to work, climate, season, etc. On the whole, the United States Naval ration, while superior to any other naval ration in dynamic or potential energies, is still below that of the well-paid mechanic or laborer ashore, and could be easily improved upon. The common

experiences the world over exist in the navy regarding waste in preparation and cooking, and no more or greater service could be done "Jack" than by training for him competent cooks. The United States Navy ration is commuted at thirty cents per diem, and the boys coming into the service are subsisted by purchase, and consume about 18 per cent. more nutrients for this sum than can be calculated for the regular ration issues. The paper contained many tables of obvious value, the fruits of long labor.

The paper on "The Army Ration," by ASSISTANT SURGEON CHARLES E. WOODRUFF was, in the absence of the writer, read by the Secretary of the Section. It was a long and painstaking review of the present customs in the army, the many difficulties and trials under which army authorities work, and a detailed analysis of the food-supplies consumed by a body of troops at a Western outpost for a period of ten days. There has not been much change in the army ration for many years, and in the absence of careful company and commanding officers the soldiers may at times lack a proper or varied enough dietary. These defects are remedied in most cases, however, by good management, company gardens, and efforts in the direction of good cooking. A garrison post may, in the instance of a desert or barren location, be poorly nourished, and in another luxuriously, owing to the possibilities of a good garden. It is, however, plain that something could be done both for our soldiers and sailors, notwithstanding that in recent years much improvement has been made in their food-supplies. This contribution should be put in the hands of every army officer, containing, as it does, so much of valuable and pertinent detail of actual customs, and the ways and obvious means so clearly pointed out for their improvement.

The Association has thus, in permanent form, full and detailed information regarding the subject of dietetics of our army and navy, and the scientific data concerned, in the most satisfactory manner.

"The Methods, Quality, and Quantity of the Component Parts of the Marine-Hospital Service Food-supplies" were given in a paper by Dr. G. W. STONER, but these, being ample and the common daily marketings and of fresh supplies, call for no extended notice.

THIRD DAY—JUNE 9TH.

The subject of the Paddock "Food and Drug Adulteration Bill" was taken up, and, being discussed, was most heartily recommended for enactment as being of vital importance to the health and well-being of our people.

The subject was transmitted to the Section on Materia Medica and Pharmacy for consideration.

The following papers were read by title, the writers not being present:

"Diet in Its Relation to the Treatment and Prevention of Disease," by Augustus P. Clarke, Cambridge, Mass.; "The Relative Interdependence of Organs in Health and Disease," by H. J. Herrick, Cleveland, Ohio; "Food and Hygiene of Old Age." by J. M. French, Milford, Mass.

Obituary.—Sir Wm. Aitken, Professor of Pathology in the Army Medical School at Netley, is dead, at the age of sixty-seven years.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held at Boston, Mass., June 20, 21, and 22, 1892.

DR. S. W. LANGMAID, of Boston, delivered the President's Address. He made touching reference to the loss of Dr. Donaldson, of Baltimore, and of Sir Morell Mackenzie—the former a Fellow, the latter an Honorary Fellow, of the Association. He reviewed the rapid advance made in laryngology within a few years, since it took a prominent position among the specialties in medicine. Such advance will be greatly helped by faithful adherence to this Association. Companionship with fellow-workers is necessary to completeness of one's growth. Membership is not only a means of information, but it also acts as a stimulus to work. Dr. Langmaid expressed the hope that the next ten years will show such work that American laryngology will occupy the position that has always been accorded it, namely, the first in merit as well as priority of establishment.

DR. D. BRYSON DELAVAN, of New York, read a paper on "The Influence of Certain Diathetic Conditions upon the Prognosis in Operations upon the Throat." He called attention to the importance, before operating upon the throat, of searching for the existence of a diathetic condition that might influence the result of the operation, such as the strumous, the rheumatic, and the hemorrhagic, and exophthalmic goiter, and general lymphadenoma. In the case of the two last mentioned, the removal of enlarged tonsils and of adenoid hypertrophy at the vault of the pharynx is attended with no extraordinary risk.

In strumous cases, complete removal of the offending tissue is more difficult, recovery is slower, and recurrence is more probable. The earlier, however, the cases are operated upon the better.

In rheumatic cases no special difficulties are offered, and the prognosis is most brilliant.

The hemorrhagic diathesis is the most important, because the most dangerous. Its presence contra-indicates all surgical interference. The only known accidents that have happened in this country in the removal of adenoid hypertrophy at the vault of the pharynx have been in hemophilic subjects. Adenoid enlargements are unusually common in these patients. There is no method of operating upon them, now known, that is safe. The galvano-cautery is not a reliable hemostatic, even in ordinary cases, as bleeding, both immediate and secondary, may occur after its use. As many of these cases urgently require relief for their throat-troubles, it is most desirable that a method of reaching them more satisfactory than any heretofore practised be devised.

DR. S. HARTWELL CHAPMAN, of New Haven, read a paper entitled "Some Pathological Conditions of the Upper Air-passages Coincident with Attacks of 'La Grippe.'" He reported sixteen cases of more than ordinary interest, selected from a large number of cases of influenza complicated by secondary affections of the upper air-passages. Eight were cases of spinal disease; one, a case of diabetes insipidus; four, cases of renal disease; three, cases of rheumatic gout.

The onset of "la grippe" was quite similar in all

of these cases: headache, nausea, anorexia, flying pains, exhaustion, progressing to extreme malaise; moderate fever, pulse either considerably accelerated or greatly retarded, mild delirium, pain and stiffness in the back. There is a close similarity between these symptoms and those of the milder forms of epidemic cerebro-spinal meningitis.

One of the rheumatic cases presented laryngitis crouposa, complicated by broncho-pneumonia; two, aphthæ of the mouth and pharynx, extending to the brim of the larynx.

The four cases of renal disease presented sanguineo-purulent naso-pharyngeal inflammation, associated with acute tonsillitis and sympathetic enlargement of the cervical glands. The swelling of the tonsils became so great as to threaten suffocation, and was relieved by incision.

In some of them there was hemorrhage, but not of dangerous character; in one, croupous laryngitis. The duration of the naso-pharyngeal inflammation was about two months; of the laryngitis, only four days.

In the case of diabetes, there was intense congestion of the entire pharynx and edema of the larynx, which continued for eight days and markedly interfered with breathing. During the severest period of the disease the pulse, which previously had been frequent, fell to 70, and the patient was less nervous.

In one of the eight cases of spinal disease, with kyphosis, a form of paralysis developed that had been absent for many years; and during the attack the pulse, normally 80, was reduced to 50. The spinous processes were intensely sensitive. In three cases of curvature of the spine in females the attack of influenza was not severe; but in all there was reduction in the rate of the pulse, extreme malaise, and sensitiveness of the spine. Secondary affections were aphonia and purulent naso-pharyngeal inflammation.

DR. FREDERICK I. KNIGHT, of Boston, read a paper on "Pharyngo-mycosis." Ever since special attention has been paid to disease of the throat, he said, observers have been struck by the peculiar obstinacy of chronic folliculitis of the tonsils, not infrequently accompanied by a similar condition at the base of the tongue, and occasionally on the arches of the palate and of the pharynx. The affection presented whitish, yellowish or grayish exudations situated at the mouths of the follicles, sometimes cheesy and easily removed, sometimes cretaceous, and sometimes only tough and stringy, and running deeply into the follicles. Speedy recurrence follows removal of the products, even after the subsequent application of strong medicaments. Fraenkel, in 1873, pointed out an abundance of leptothrix threads in such products, and some writers have looked upon the parasite as the cause of the condition. A number of other forms of parasitic growths in the throat have also been described. Other observers, notably Chiari, believed that the parasite is simply an accidental complication.

In the treatment of typical cases of mycosis nothing has been found satisfactory except boring deeply into each follicle with a galvano-cautery point. If any of the disease were situated in a part of the tonsil that could be removed, excision would shorten the treatment.

DR. DELAVAN stated that he had obtained the best results from frequent washing with borax or with mercuric chloride, and, above all, by correcting disturbed digestion.

DR. DEBLOIS, of Boston, stated that he uses instrumental means, and a mild astringent, such as nitrate of silver, and gives attention to the digestion.

DR. JOHNSON, of Baltimore, stated that he found these cases mostly among debilitated school-children and old subjects. He uses local and constitutional measures.

DR. CHAPMAN advised treating these cases locally, with fuming nitric acid, introduced through a grooved platinum needle, and internally by nitro-muriatic acid.

DR. JONATHAN WRIGHT, of Brooklyn, reported "A Case of Fibrous Epithelioma at the Root of the Tongue." The diagnosis was extremely difficult. The form in which the disease presented itself was rare. When first examined, the tongue seemed normal, except for two prominences on each side at the base, which felt hard and firm. Grave doubts were entertained as to the exact nature for several months; finally, Dr. McBurney operated for carcinoma. An ulcer had formed, making the diagnosis more evident. The patient did well for a time, but finally died, without, however, a recurrence.

DR. BEVERLEY ROBINSON, of New York, read "A Report of Some Cases of Membranous Sore-throat." In the three cases reported there was great difficulty in diagnosticating between true diphtheria and membranous sore-throat of some other origin. The bacteriologic examination failed to disclose the presence of the Loeffler bacillus, while streptococci were present in abundance. Failure to find the Loeffler bacillus, however, does not necessarily disprove the existence of diphtheria. In case of doubt it is unwise to prematurely make a diagnosis of true diphtheria and cause the family alarm and trouble. At the same time certain precautions could be taken against unnecessary exposure of the well. Sulphur-fumigations are especially objectionable. The treatment might be that which would be adopted in a case of true diphtheria. Dr. Robinson spoke highly of the use of powdered cubebs, taken by the mouth in small pinches at frequent intervals. He condemned the custom of the health-officers in some sections of posting houses with diphtheria, as if persons passing such houses and not entering them were liable to take the disease.

Considerable discussion followed, and a resolution was adopted making as a subject for discussion at the next annual meeting, "The Best Means of Protecting the Public against the Spread of Diphtheria."

DR. MORRIS J. ASCH, of New York, presented a tampon, consisting of a hard-rubber tube, with perforations, for use after operations for deviation of the nasal septum. Dr. Asch also presented a set of Dr. Dessau's antiseptic electrodes, and Dr. Dessau's curette for adenoid growths.

DR. D. B. DELAVAN, of New York, proposed the administration of potassium iodide, in peptonized milk, in cases of tertiary syphilis of the throat, in which the ulceration had become so severe that the patient could not swallow with ease.

DR. J. WRIGHT, of Brooklyn, presented an improved forceps for the removal of adenoid growths in the post-nasal space.

DR. JOHN O. ROE, of Rochester, presented an improved Adams's forceps for straightening the nasal

septum, which possessed the advantage of enabling one to over-correct the deformity.

DR. C. H. KNIGHT, of New York, showed an improved snare for removal of the tonsils with a ring-safeguard.

DR. C. H. KNIGHT, of New York, read a paper entitled "Intubation for Chronic Stenosis in a Boy of Ten." According to the statement of his physicians, the boy had been ill for a week or more with dyspnea, aphonia, cough, and fever. There was a history of bad hygiene and poor diet. He could not whisper, and his breathing was quite noisy and labored. The dyspnea was decidedly more marked at night; it was relieved by inhalations of oxygen. The boy's condition grew worse. On examination a neoplasm was found beneath the vocal bands. The bands were red, and did not approximate on phonation. Beneath the cords, extending along their entire length and invading the anterior commissure, was a mass of tissue, paler in color than normal mucous membrane, having an uneven, and at certain points an almost papillary surface. No ulceration could be discovered. The air-passage was converted into an irregular, narrow slit. To relieve the dyspnea an O'Dwyer tube was introduced. This was worn intermittently for many weeks. It was impossible to get sufficient of the tissue to make a satisfactory microscopic examination. The process was at first thought to be tuberculous, but the absence of pulmonary signs and the marked change for the better after intubation pointed to simple subglottic papilloma. After about three months tracheotomy, thyrotomy, and radical extirpation of the neoplasm were proposed, but the case progressed rapidly to a fatal termination from general tuberculosis.

The points of interest were: 1. The simplicity of intubation as compared with tracheotomy, and the ease with which the tube was extracted, with the aid of cocaine and under the guidance of the mirror. 2. The slight amount of disturbance excited by the presence of the tube, and the absence of objection to its prolonged retention. Finally, the question suggested itself: Was it a case of primary laryngeal tuberculosis? The patient seemed much more comfortable than he could have been with the tracheal instead of the laryngeal tube.

DR. ALEXANDER A. MACCOY, of Philadelphia, read a paper entitled "Rare Forms of Laryngeal Growth," reporting a case of myxoma, and one of fibroma of the larynx. The first is quite rare; the second is not so infrequent. The myxoma seemed to have had its origin from the margin of the orifice of the ventricle. The patient's voice was completely restored after removal of the growth. In the other case most of the growth was removed by the cold snare, the remainder to be operated upon later. The tumor appeared to have sprung from the anterior and right surface of the arytenoid cartilage.

DR. H. L. SWAIN, of New Haven, reported "A Case of Tumor of the Larynx," relating the history of a case of fibro-myxoma of considerable size, attached by a pedicle to the anterior commissure of the vocal bands. The growth, the base of which was spread out over a greater surface than had been supposed, was removed with difficulty. Its removal had been followed by relief of the difficulty connected with phonation and respiration, and the patient had for two years remained free from recurrence.

DR. C. C. RICE stated that he has found it easier to apply the guillotine snare than the forceps in the removal of small laryngeal growths. Recently, in the case of a policeman, he had observed syncope follow the use of 4 per cent. solution of cocaine in the throat.

DR. LANGMAID stated that, on the recommendation of a European authority, he had used nicotine in an operation for the removal of a growth in the larynx in one case, and threatening poisonous symptoms developed.

DR. C. C. RICE, of New York, read a paper on "The Value of Sprays in the Treatment of Catarrhal Affections of the Upper Air-passages." He does not recommend the spray as a substitute for other methods of treatment. While some advantages attend the use of petroleum preparations, there is danger in their inconsiderate use, as a dry condition of the nasal passages may result. Such agents as iodoform and aristol lose much of their antiseptic property when used with oily agents, nor when thus used could their stimulating action be so well relied upon. In catarrhal affections of the upper air-passages nice judgment is required in selecting the drug, and particularly the strength of the solution to be used as a spray. The pressure should be regulated and the temperature should be adapted to the particular case. A weak solution of cocaine, say less than 1 per cent., is, perhaps, as good an astringent as any. A pressure of fifteen pounds to the square inch is sufficient for the anterior nares, while a pressure of from twenty-five to thirty pounds is necessary for a post-nasal spray.

DR. J. W. FARLOW presented a form of adenoid forceps which he had purchased in Paris, and had found an excellent instrument for the removal of adenoid growths in children and adults.

DR. JOHN O. ROE, of Rochester, read a paper on "The Correction of Deformity Resulting from Abscess of the Nasal Septum." In the case detailed there was, as is usual in these cases, marked thickening and widening of the dorsum of the nose proportionate to the amount of flattening. This thickened ridge of tissue was incised on both sides a short distance from the septum, at a point where it thinned into the alæ. The incision was made along the edge of the flattened tissue, through the cartilage of the alæ, to the under side of the skin, care being taken not to wound the latter. The skin was raised from the dorsum of the nose, and the flaps then turned upward and held in place by small ivory spring-plates on each side, having holes through which sutures were passed from one to the other, extending through the flaps. These threads were then tied so as to hold the flaps firmly in place, care being exercised not to strangulate the parts. The flattened condition of the nose was relieved, but not entirely. Owing to the entire absence of the triangular cartilage, there was not sufficient support to hold the nose upright. In order to increase the solidity of the septum, each side of the lower portion of the septum was first scarified, the front portion of the skin, however, being left intact. Wide, thick flaps were cut from the floor of the nostril opposite the portion of the septum which it was desired to render more rigid. These were turned upward and fastened together with clamps in the same way as the upper flaps.

The upper border of the flaps was also connected to the cut portion of the septum by means of fine sutures. The result was excellent. To maintain the nose in position until the parts healed, a small spiral spring was used.

DR. T. A. DEBLOIS, of Boston, read a paper on "The After-results of Nasal Cauterization." He related the histories of five or six cases in which he or others had cauterized the nose two or more years previously. In most of them the cauterization had been practised for an hypertrophied condition of the turbinated bone, and the immediate result, as far as relief of the symptoms was concerned, had been successful. Two years subsequently the patients had returned, again complaining of nasal obstruction. In some a rhinoscopic examination revealed, on either side of the original scar left by the cautery, the presence of swollen and projecting mucous membrane, which blocked up the nasal passages. In one case—a somewhat remarkable one—the mucous membrane, which was thrown in corrugated folds, had been cauterized frequently. Some of the cases showed, and doubtless many others would show, that the cautery may fail of the desired effects as a result of improper application, such as, on the one hand, making the scar-tissue too deep or, on the other, making it too shallow, and again of including in it too much tissue or not enough.

DR. J. H. BRYAN, of Washington, reported "A Case of Suppurating Ethmoiditis." The patient gave a history of having suffered from caries of an upper molar tooth. Her nose became closed; the secretions, at first watery, became thick and fetid. There was pain over the bridge of the nose, extending along the infra-orbital ridge to the temporal region. There were severe headache, pain on pressure of the eyeball, and a crepitating sensation below the orbit. On the left side of the nose were two mucous polypi attached to the anterior extremity of the middle turbinated bone. After snaring off the polypi, thick caseous secretion was observed to come from both the middle meatus and from above, between the middle turbinated body and the septum. Examination with the electric light showed the left antrum to be opaque, indicative of inflammation of the ethmoid cells. In spite of treatment, the conditions grew worse, until the abscess spontaneously discharged a large quantity of thick caseous secretion. After this the pain ceased and the general health improved.

The following are the officers for the ensuing year:

President.—Dr. Morris J. Asch, of New York.

First Vice-President.—Dr. S. Johnston, of Baltimore.

Second Vice-President.—Dr. J. C. Mulhall, of St. Louis.

Secretary-Treasurer.—Dr. C. H. Knight, of New York.

Libarian.—Dr. T. R. French, of Brooklyn.

Member of Council.—Dr. S. W. Langmaid, of Boston.

The next meeting will take place in New York in the last week of May, 1893.

CORRESPONDENCE.

THE LATE D. HAYES AGNEW.

To the Editor of THE MEDICAL NEWS,

SIR: At the request of Mrs. D. Hayes Agnew, I am preparing a biography of her late distinguished husband; in consequence, I am looking for data on this subject. Will you kindly announce that I am desirous of obtaining from all of Dr. Agnew's former friends, colleagues, associates, students, and acquaintances all authentic data in any way relative to his career or character? Dr. Agnew's acquaintance was so vast, and his life was so actively spent among his friends, while his own modesty was so marked, that undoubtedly a great many incidents, anecdotes, characteristic stories, etc., are unknown to his family. All material, however apparently insignificant or small, will be welcomed. Credit will be given to all data which is used. Yours faithfully,

J. HOWE ADAMS.

252 SOUTH SEVENTEENTH ST.

CHAIRMEN OF COMMITTEES OF ANATOMIC AND BIOLOGIC NOMENCLATURE: CORRECTION.

To the Editor of THE MEDICAL NEWS,

SIR: In a circular relating to "American Reports upon Anatomical Nomenclature," issued last winter by me as Secretary of the Committee of the Association of American Anatomists, in the third paragraph of the third page, the name of the Chairman of the Committee of the Anatomische Gesellschaft should have been Prof. A. von Kölliker, and that of the Chairman of the American division (appointed in 1891 by the American Association for the Advancement of Science) of the International Committee on Biologic Nomenclature should have been Prof. G. L. Goodale. I exceedingly regret the occurrence of the errors, due in the one case to my own misapprehension, and in the other to a clerical mistake.

BURT G. WILDER, M.D.

CORNELL UNIVERSITY, ITHACA, N. Y.

NEWS ITEMS.

"The Scalpel" is the name of a new monthly publication issued from the College of Physicians and Surgeons of Chicago, and under the editorial care of Dr. Louis J. Mitchell, assisted by two members of the class. Ventures of the kind of which this is an illustration are to be heartily encouraged as an indication of a progressive tendency, with which, however, the publication of an advertisement of a secret nostrum on the second page of the cover is entirely out of harmony.

The Lehigh Valley Medical Association will hold its twelfth annual meeting at Bethlehem, Pa., on Thursday, July 7, 1892. Dr. John B. Deaver, of Philadelphia, will deliver the annual address, the subject of which will be "Inflammation of the Right Iliac Fossa Associated with Lesions of the Cecum, the Vermiform Appendix and Adjacent Tissues."

Medico-Chirurgical College.—Dr. W. F. Haehnlen has been elected Professor of Obstetrics; Dr. W. E. Ashton, Professor of Gynecology, and Dr. C. M. Seltzer, Professor of Hygiene.

Dr. John Ridlon, formerly of New York, has been appointed lecturer on Orthopedic Surgery at the Chicago Medical College.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, JULY 9, 1892. NO. 2.

ORIGINAL ARTICLES.

CLINICAL OBSERVATIONS AND RESULTS OF ELECTROLYTIC ACTION IN ESOPHAGEAL STRICTURES.[1]

BY DONALD S. CAMPBELL, B.A., M.D.,
OF DETROIT, MICH.

IN the early summer of 1888, at the meeting of the State Medical Society, held in Detroit, I briefly reported before the surgical section the successful cure, by electrolysis, of a case suffering from tumorous stricture of the esophagus. In May of the same year, at Cincinnati, before the surgical section of the American Medical Association, I clearly demonstrated, from a goodly number of tabulated cases, the great advantage of this powerful agent over other procedures in the removal of various neoplastic structures occupying the nasal, pharyngeal, and laryngeal regions; but up to that time no more interesting case presented itself to our observation than the one reported.

It will be remembered that the report caused considerable sensation in medical circles at the time, not so much from the exhibition of the patient herself—who, nevertheless, was a living monument of the practicability of the galvanic current—nor from the history or clinical facts brought out in the general discussion, but from the practical results and the novelty of the treatment employed. Indeed, it is not to be wondered at, especially when we consider the location and extent of the fibroid-tissue processes, involving, as they did, the greater portion of the middle part of the gullet, and which up to this time had defied every deliberate attempt at removal—to succumb at last to an agency so simple and painless, and comparatively harmless in the hands of one possessing knowledge of its application, yet powerful enough to induce destructive changes in their cell-like structures so as to produce their absolute destruction by absorption, thereby restoring the long-lost functional activity of the esophagus. Though nearly five years have elapsed since the woman first submitted herself to electric treatment, as a hopeless, physical wreck—from simple starvation—she is well in every respect to-day, not a symptom being present to indicate recurrence of the growth, thus proving conclusively the permanency and reliability of the treatment.

[1] Read before the Section of Surgery and Anatomy of the American Medical Association, June 7, 1892.

Since then I have added to the list six other successfully treated strictural cases, which I am about to report. These fully establish the claim that I made on that occasion, that no procedure has yet been presented which is as capable of combating the difficulties with as much safety and reliability as the influence of the galvanic current.

I do not, on this occasion, propose, however, to weary you with any "reiterated logic" on the subject matter, but to present actual clinical facts from carefully tabulated notes, so as to estimate as far as possible the value of the treatment employed. It is, nevertheless, well to bear in mind that the use of the galvanic current directly applied to any portion of the gullet was considered hazardous, owing to the close proximity of the pneumogastric nerve, until I clearly demonstrated from the first reported case, four years ago, that it was otherwise if the strength of current were intelligently regulated. Indeed, I remember well the admonitions which the late Sir Morell Mackenzie, of London, and Dr. Louis Elsburg, of New York, gave me several years ago for just attempting to broach the term electrolysis as a means of combating these abnormal conditions. They fully concurred in the belief that galvanism, however mildly applied to the esophagus, would be attended with danger, though they were aware that it had been employed with safety and good results to general neoplastic matter situated in the immediate vicinity of other vital parts, showing that even at that time, ten years ago only, they were entirely ignorant of the genuine chemical absorption of galvanism and the safeness with which it could be applied in close proximity to important nerve-centers, without disturbing their functions, even after a thorough knowledge of its behavior was obtained. Since then, however, we have made rapid strides in the general use of the galvanic current, and thoughtful study of its dosages in diseased tissues wherever situated. Indeed, the clouds of empiricism have gradually swept by, and though much yet depends on experience gained by experimentation, we can see clearly ahead, by the deep insight that enables us by our present knowledge of its subtle laws, to understand its hidden scientific meaning, and apply it accordingly.

Since it is the object of this paper to report in detail the several esophageal strictural cases that happened to have come under my notice, it will be in keeping with the subject to abstain at present from giving

the history of the development of the application of galvanic electricity and the scientific explanation of its operations. Neither do I propose to deal with the pathology of varied strictural abnormalities, but I shall simply present clinical facts as I carefully noted them while the several patients were under treatment. The first case then to which I shall refer is:

CASE II.—Mrs. H., a well-to-do lady of seventy years, a resident of Detroit, consulted me three years ago last Jannary for increasing dysphagia, after having gone the rounds of several physicians, from New York to Omaha. She stated that several years previously, having drunk in a hurry a very hot cup of tea, she experienced at the time, and for several weeks afterward, considerable pain and difficulty in swallowing solid food. This gradually subsided until she thought herself as well as usual, when to her great astonishment, six months after this unavoidable accident, she realized that the lumen of her gullet was gradually getting smaller. Though she experienced no pain, she began to find some difficulty in swallowing solid food. This dysphagia gradually increased from year to year, though dilatation was frequently practised, until she was induced to consult me, when I learned that she had not been able to swallow solid food at all for several months previously, and it was with difficulty that she could swallow even fluids. Indeed, she was delicate, very anemic and emaciated from want of nourishment, but was willing to try any treatment to obtain relief.

After obtaining the foregoing history I made a careful examination of the gullet, and, after much annoyance, particularly from retching, found that she was suffering from what I considered a fibrous stricture, an inch in length, situated about two inches below the cricoid cartilage. It was with great difficulty that I managed to pass a No. 6 (English gauge) esophageal bougie. After gaining an entrance, I resolved to try gradual dilatation again. After several weeks of faithful trial I abandoned it as a useless procedure in her case, for the irritation it developed appeared to increase the localized occlusion. I then concluded to try electrolysis. On January 28, 1889, an esophageal electrode, one quarter inch in diameter by half an inch in length, was introduced down to the commencement of the obstruction, where a current-strength of five milliampères was administered under gentle pressure. As no inconvenience was experienced, I gradually increased it to ten milliampères; and though decided impressions of the current were manifest, it passed easily by the stricture in sixteen minutes, without causing any excitement on the part of the patient. This same electrode was introduced again on the 31st of January and on February 3, when I resolved to try to pass an electrode, half an inch by one inch in length. This was accomplished, after several attempts, on the 12th of February, with a current-strength of fifteen milliampères. By this time she realized that a change for the better was occurring, for she could swallow fluids much better and partake of thick gruel. This electrode was introduced again on the 18th and 25th, and March 6th, when it was dispensed with for a larger one of five-eighths of an inch by one and one-fourth inch in length. This esophageal electrode was very easily made to pass the obstruction, and was only used twice, viz.: on the 10th and 15th of March; for the stricture appeared to yield to the slightest pressure, though even now she was not able, or rather I should say willing, to swallow solids. The last and largest electrode I used to electrolyze the stricture was one inch in diameter by two inches in length. It was applied in all ten times, for about ten minutes' duration, and under a current strength of twenty milliampères. But it was not necessary to have used it, for the obstruction was practically removed by chemical absorption previously; yet it was not until I began introducing the large electrode that the woman, to her great satisfaction, found that she could swallow solids and fluids with as much ease and confidence as she ever could. She was consequently discharged as cured on May the 5th. Since then I have examined her on several stated occasions, and have failed to find the slightest recontraction; so I look upon the case as absolutely cured.

CASE III was that of a gentleman—Mr. M.—a resident of Detroit; a liquor-dealer by occupation, fifty-two years of age, temperate in his habits, and of good family history. He consulted me for the first time on May 29, 1889, for difficulty of swallowing. He had suffered from increasing dysphagia for three years, taking sometimes as long as two hours to eat an ordinary meal; but it was not until a few weeks previously to seeing me that he was unable to swallow solid food. The dysphagia developed very gradually from the first, though the man never could assign any cause for it, unless it were from swallowing hot drinks; for he had been in the habit of drinking very hot fluids all his life. His appearance at this time was that of a healthy man, possessing an immense amount of will-power. Though not able to partake of solids, his body was well nourished by milk, beef-tea, beef-broths, and thin arrow-root, which he swallowed in large quantities slowly; yet he was extremely anxious to obtain relief, whatsoever the cost or means employed.

After obtaining the foregoing history I carefully examined the gullet with a No. 6 esophageal bougie. After many trying difficulties I succeeded in passing it through the stricture, which I found was located at the lower portion of the upper third of the esophagus. It was about an inch in length and apparently composed of smooth, dense, fibrous tissue. Galvanism was administered in a mild current—ten milliampères—on May 30th. A negative electrode was by gentle pressure made to pass the obstruction in twenty minutes. This was repeated on the 1st, 2d, 4th, 6th, 8th, and 10th of June, when it was dispensed with for a No. 20 negative electrode; but, owing to the density of the tissues (which were very unyielding), it was with difficulty made to pass the obstruction, requiring an application of thirty minutes' duration, of a current strength of twenty-five milliampères. The electrode was introduced again on the 12th, 15th, 18th, 21st, and 23d of June,

when it passed the fibrous ring without encountering any particular resistance. The man was now able to swallow fluids much more easily, and to partake, too, of finely-minced meat. On the 25th of June I introduced a much larger electrode, two-thirds of an inch in diameter by one and one-half inches in length, with a current-strength of twenty-five milliampères. The electrode was made to pass the stricture in five minutes, with the application of only slight force. It was again introduced on the 28th and 30th of June, when I applied my largest electrode, one inch in diameter by two inches in length, with the same current-strength. On July 1st the electrode passed the obstruction very readily, without causing any pain or inconvenience whatever. This last electrode was again applied on the 3d, 6th, 10th, 16th, 20th, 24th, and August 4th and 10th, when the patient was discharged as cured. He was able to swallow both solids and liquids without experiencing any sense of choking. Since then I have examined his gullet twice and found no recurrence of the stricture. So far he is a perfectly healthy man.

CASE IV is that of Mr. G., forty-seven years old; of German extraction, with a good family history, a printer by trade, and a resident of Detroit. He consulted me August 5, 1890, for difficulty in swallowing, which he declared was occasioned by a long-standing pharyngeal catarrh. Though not intemperate, he drank beer regularly and smoked black plug-tobacco to excess. He frequently suffered with faintness, nausea, and vomiting. Though it was but a year previously to his consulting me that he began to realize that his gullet was gradually narrowing, when I first saw him he was utterly unable to swallow solid food, subsisting wholly for several weeks on nutrient fluids. After obtaining this history I found, on examination, that opposite the cricoid cartilage, just at the beginning of the esophagus, where usually the slightest contraction interferes with the peristaltic action of its circular fibers, there was a general contraction of the gullet, arising principally from a local hypertrophy of the mucous membrance, which yielded readily to a No. 20 esophageal bougie. Simple dilatation was practised for several weeks daily, first with fair results, but I found this too tedious and irritating to the parts, and I again resolved to try electrolysis. The negative electrode, three-quarters inch in diameter by one and one-half inches in length, was applied without difficulty to the thickened portion of the gullet for twenty minutes, with a current-strength of twenty-five milliampères on August 28th, also on the 29th and on Septemper 1st, 8th, and 12th, with splendid results, for the man was at this time able to swallow solids with comparative case. On the 20th I introduced the larger electrode, viz: one inch in diameter by two inches in length, with a current-strength of twenty-five milliampères for twenty minutes. This was repeated again on the 27th, and on October 1st, 10th, 15th, 23d, and 29th, when he was discharged as cured, for he could swallow solids with perfect satisfaction and ease. He still comes to my office every three months to have his gullet electrolyzed, but I have thus far found no evidence of recontraction.

CASE V is that of Mrs. M., of this city, twenty-eight years old, who some ten years ago suffered from esophagitis, which resulted in a general chronic hypertrophic condition, followed ultimately by a diminution in the lumen of the gullet, so that she was unable, especially during the catamenial periods, or when suffering from colds, to swallow solid food. Indeed, during her best spells, she was compelled to masticate her food thoroughly fine, and to have it well moistened with saliva or other fluids, before she dared attempt to swallow it, and then in only small quantities at a time. Her capability of swallowing was, however, gradually lessening, and this thoroughly aroused her to a sense of her true condition, when she was induced to consult me. After learning the true status of her case I made a careful examination of the esophagus, using a No. 15 bougie, and found that the caliber of the gullet was greatly reduced by a general thickening of the mucous membrane interfering with its functional activity. The woman was placed upon electric treatment May 2, 1890. A negative electrode, one-half inch in diameter by one inch in length, was gradually introduced into the diseased gullet, until the cardiac orifice was reached, a current-strength of thirty milliampères being employed for thirty minutes. The application was repeated on the 4th, 6th, 8th, 10th, and 12th, when a five-eighths of an inch electrode was applied on the 14th, 16th, 20th, and 24th, with the same strength of current and for the same time. After the introduction of the last electrode the woman had improved remarkably, for she could swallow solids of every description with perfect ease, without pain or sense of choking, to her great enjoyment. On May 28th and June 4th, 8th, 12th, 15th, and 20th I used the larger electrode, as in other cases, though it was not necessary, and the patient was dismissed as cured. I have examined her esophagus on several occasions since—the last time a month ago—and find that the hypertrophied condition is entirely removed, with no evidence of its recurrence.

CASE VI is that of an elderly lady, fifty-eight years old, a resident of South Dakota, with good family history. She consulted me on the 15th of April, 1891, for a difficulty of swallowing. She stated that she had enjoyed good health until six months previously to consulting me, and that the dysphagia had gradually but rapidly increased until she was unable to swallow even fluids. During the commencement of the trouble she experienced great pain in swallowing, accompanied by a burning sensation in her stomach, which caused her to drool large quantities of tenacious secretion. These symptoms, however, passed away just as gradually as the disease developed, until the gullet became practically occluded, about four weeks previously to her visiting me. Though she had to depend entirely upon nutrient enemata for subsistence during this time, she did not appear to have lost much flesh or courage. Indeed, the only sign of any physical impairment noticeable was a feeling of general weakness, which became quite apparent after gentle exercise. After obtaining this history I made a careful examination of her gullet, and found, as I anticipated, a

formidable obstruction at the cardiac extremity, by which, after many attempts, I failed to pass as small a bougie as No. 4. Being fearful of the dangers that attend forcible dilatation, viz., that of rupturing the diseased part of the gullet, and in view of the fact that the diagnosis was obscure, and the actual result of the case could not be determined, I proposed what I considered then the most reliable surgical procedure, viz., gastrotomy. After due deliberation, this was refused. As time was exceedingly precious, and being fully warned of the probable outcome of her case from delay, the woman, though greatly opposed to the direct administration of galvanism, consented to try it. I must confess that I did not expect good results from it myself, for the canal appeared to me to be entirely obliterated by organic deposits. However, on the 18th of April I introduced a No. 4 negative electrode down to the stricture and applied, with a steady gentle pressure, a mild current, of ten milliampères, which was gradually increased after several minutes to fifteen. The application was suspended for a couple of days, as the patient complained of some pain, with nausea and faintness. The application was repeated on the 20th, 21st, and 22d, with similar results. On the 24th, however, when she found that no bad effects resulted, she was able to withstand a much stronger current; twenty-five milliampères for twenty minutes, without any annoying symptoms whatever. This was repeated on the 25th with the same current-strength, when, to my great astonishment, I discovered, after twenty-five minutes' steady application under gentle pressure, that the electrode passed by the obstruction and entered the stomach. This electrode was again applied on the 26th, 27th, and 28th, with better results. On the 29th I introduced a No. 6 electrode under similar conditions. It passed the obstruction readily, and was used, in all, four consecutive times. On June 5th I introduced a No. 12 electrode, to which the stricture yielded after a few minutes' constant application. This was followed by a No. 20, which was applied on the 6th, 7th, 8th, 9th, and 10th with good results, for the woman at this time was able to swallow warm, nourishing drinks in very small quantities. On June 12th, 13th, 15th, 17th, and 20th I applied an electrode, one-half inch by one inch in length, with the greatest ease. Indeed, the constriction—about an inch in length—appeared to have lost its contractility entirely, as if the obstruction was completely removed, for I was able to pass my largest electrode, one inch in diameter by two inches in length, through the whole of the gullet into the stomach without encountering any particular resistance. Although the peristaltic power of the esophagus was greatly impaired from want of proper stimulus, in consequence of non-usage, the patient was able to swallow fluids slowly, and solids, after being finely minced, in small quantities at a time. The power of deglutition was gradually restored after a few months of regular treatment as rapidly as her general health improved. The woman was discharged in August as practically cured, with the functional activity of the esophagus fully restored. I have recently heard from her, and she declares that she can swallow solids with greater ease than when she was discharged, ten months ago.

CASE VII is that of Master C., fourteen years old, anemic and delicate-looking. Four months ago he consulted me for a difficulty in swallowing. I learned that a year previously he had suffered from a severe attack of diphtheria, from which he never fully recovered. Although he was able to swallow nutrient fluids with ease, he found it impossible, from a dread of choking, to swallow solids. On examination, made with perfect ease, I discovered, just at the junction of the esophagus with the pharynx, a slight cicatricial contraction—just enough to interfere with the commencement of the peristaltic action of the circular fibers. Electrization was practised, with forcible dilatation, for several weeks, with perfect success. The boy is now able to swallow as well as he could before he was stricken with diphtheria, and has improved greatly in general appearance, having gained in flesh and strength.

Some of the cases here reported are of too recent date to assure ultimate recovery. I am almost persuaded, however, especially after considering the nature of the strictures as being not morbid in character, that they will not recur. As the majority of them have not received any treatment in more than two years, and I have yet failed to notice the slightest evidence of their recurrence, I think we are justified in claiming them to be permanent cures. In Cases III and VI, I was impressed by the doubt at first as to whether malignancy was at the bottom of them or not; for their ages and the history of the rapid development of the obstruction suggested such a view, though subsequently the strictures proved to belong to the cicatricial variety and to be quite local.

In organic strictures of whatever kind I have, however, never been able to afford more than partial and temporary relief; they are, practically speaking, incurable; for I have not managed to find, after making an extended search through medical literature, that they could be cured.

In thus briefly recording the excellent results derived from electrolytic action in these cases, though they happened to originate primarily from simple inflammatory action, resulting in cicatricial and other deposits of inflammatory products of a non-malignant character, we are compelled to admit, that for safeness, rapidity, and reliability in combating such difficulties, electrolysis has no superior.

It may be true that in Cases IV and VI we could have practised simple dilatation with safe advantage, with perhaps similar results after a longer period of treatment. We can, however, never be certain that dilatation will afford permanent or temporary relief. Again, I have found from personal experience, in several cases, especially if the strictures were in any way unyielding and spasmodic, that the bougies, however gently used, not only caused irritation

and pain, but also aggravated the narrowing. Forcible dilatation or rupture, though it has occasionally been performed with fair results when it was desirable to open up the passageway as quickly as possible, I do not consider a safe proceeding, for the reason that just where the fibrous band or cicatricial contraction springs from the esophageal wall, atrophy of the muscular tissues usually takes place, especially if the stricture is of long standing—a result, no doubt both of defective nutrition and of want of proper peristaltic exercise, so that that portion of the strictured gullet is weak and unprotected from forcible expansion. Indeed, internal esophagotomy is a safer proceeding, if the extent, position, and direction of the incision could be regulated, because less violence is applied to the gullet in the division of a stricture than in forcible rupture. Esophagotomy possesses as well the greater advantage of hastening the process of dilatation. Though internal esophagotomy is ideally the best operative procedure, it is not by any means free from danger, because it is almost impossible to regulate the amount and extent of the division. Of eleven cases operated on for cicatricial stricture, reported by Sir Morell Mackenzie in his admirable book, 28 per cent. died directly [illegible]. As Mackenzie curtly remarks, the "thinness of the esophageal walls, the close proximity of many vital organs, and the fact that in disease the gullet is often immediately adherent to surrounding parts, constitute dangers which cannot be ignored," even by the skilled esophagotomist.

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In electrolysis, however, we have not only a safe electrochemic weapon, but a reliable one, which has in these cases guaranteed absolute satisfaction. Indeed, I am not acquainted with any other system of treatment that can compare with it in the removal of cicatricial contractions of the gullet. For the sake of argument, it may be said, that since the electrodes were graded and used precisely like dilating esophageal bougies, the process was similar to that of dilatation. I have, however, already shown in several instances, that even simple dilatation is sometimes very irritating, unreliable, and tedious, whereas in these cases the electrochemic bougie was not. It accomplished its purposes in accordance with a just estimate of its utility in some instances, as in Case VI, even after the stricture was acknowledged to be extremely difficult and intractable of treatment.

The Prevention of Tuberculosis in the Dog.—At a meeting of the Académie des Sciences, Richet and Héricourt (*La Médecine Moderne*, No. 24, 1892, p. 387) reported the protection of dogs from human tuberculosis by previous inoculation with the tuberculosis of birds. Of nine animals so treated all survived, while twenty-one control-animals died.

THE TREATMENT OF POSTERIOR ROTATION OF THE OCCIPUT DURING LABOR.[1]

BY EDWARD P. DAVIS, A.M., M.D.,
PROFESSOR OF OBSTETRICS AND DISEASES OF INFANCY IN THE PHILADELPHIA POLYCLINIC; CLINICAL LECTURER ON OBSTETRICS IN JEFFERSON MEDICAL COLLEGE; OBSTETRICIAN TO THE PHILADELPHIA HOSPITAL, ETC.

AMONG the complications of labor not requiring surgical interference none is more important or fraught with greater danger to child and mother than posterior rotation of the occiput. We desire to substitute this term for that commonly employed —"occipito-posterior positions"—believing that the method of obstetric study that recognizes but two positions for each presentation is more rational and serves a better purpose than the more complicated system that calls for many positions. We shall then make but two positions for each presentation; for example, a vertex presentation has a first and a second position. The first is the usual one, the back of the child directed toward the left side of the mother and the vertex directed slightly toward the left side of the mother's pelvis. The second position of a vertex presentation is that in which the back of the child is directed toward the mother's right side and the occiput points to the right of the mother's pelvis.

During labor the occiput, in the vast majority of cases, turns forward, toward the symphysis pubis. Occasionally it descends through the pelvis, showing a tendency to turn posteriorly, thus giving rise to what have been styled "posterior positions." It occasionally happens that during pregnancy the occiput is situated behind the center of the mother's pelvis; whether the occiput endeavors to turn backward, or whether during pregnancy it is situated slightly behind the center of the pelvis, it is more rational and easier of comprehension to call this abnormal turning of the occiput "posterior rotation" than to make four positions, two of them posterior. In common with many Continental students of obstetrics, we style the condition as an "abnormal rotation of the occiput," and not as "occipito-posterior positions."

The causes of the tendency to turn posteriorly are several. The mother's pelvis may be narrowed in its anterior half and its sides may lack those surfaces anteriorly to a line drawn upward and forward from the spines of the ischia that normally favor the anterior turning of the head. The head of the child may be of unusual size or contour, finding its most convenient lodgment at the posterior extremity of one of the oblique diameters of the pelvic brim. Again, during labor, the posture assumed by the mother may not be such as to favor the anterior

[1] Read at the meeting of the American Medical Association, Detroit, June, 1892.

turning of the vertex. Many cases exist in which no one factor has been found to be entirely responsible for the abnormality; thus, a small child may enter the pelvis with its head in partial extension or flexion, and this intermediate condition remaining, the occiput may turn toward the hollow of the sacrum.

Some of the symptoms of posterior rotation of the occiput may be perceived before labor has actually begun, while others are discernible only after the commencement of labor. Palpation and auscultation will often reveal the fact that the occiput is directed toward the middle line or even slightly behind the center of the pelvic brim. The back of the child may be turned somewhat posteriorly, so that the heart-sounds seem to come from deep in one side of the mother's abdomen. If the abdominal walls are thin the occiput can be mapped out and accurately located. If a history of previous labors be sought there will be an account of prolonged parturition, probably ended by instrumental delivery, and often resulting in the death of the fetus.

At the time of labor it is often difficult to map out accurately the position of the head unless the tissues be elastic and admit of manipulation. If the attending physician notices the absence of the vertex in the anterior half of the mother's pelvis he will do well to allow her to inhale sufficient chloroform to permit the introduction into the vagina of enough of the hand to make a positive diagnosis.

We shall best understand the indications for treatment by considering briefly the course of a hypothetic case if left to nature. Statistics show that the greater number of cases result in anterior rotation of the occiput without assistance. By some the proportion of cases that rotate spontaneously to the front is placed as high as 96 per cent.; others allow but 75 per cent. My own observation and the records of 219 cases occurring at the Philadelphia Hospital lead me to believe that 87 per cent. of these cases terminate spontaneously with anterior rotation. A source of fallacy in a study of the question arises from the fact that an exact diagnosis of the position of the head is rarely made early in labor; a practitioner is often satisfied with finding that the head is presenting and that the face is not the part found by the examining finger. Thus, a case in which posterior rotation has begun, but which terminates by turning forward, is not recognized until anterior rotation has occurred.

If we seek to ascertain the factors upon which anterior rotation depends, we find them to be essentially three in number: First, a normal proportion in size between the head and the pelvis; thus, a small head in a small pelvis favors normal rotation, and a large head in a large pelvis is likewise favorable. Secondly, a flexed position of the head is essential to anterior rotation of the occiput. Thirdly, the forces of labor must be normal, namely, the contractions of the uterus and the resistance afforded by the pelvic floor. If any one of these factors is notably deficient, a perversion of rotation is very likely to occur.

Abnormal rotation of the occiput is a source of danger to the life of the child and to the integrity of the mother's tissues and also to her life. The child's life is jeopardized by long-continued pressure during prolonged labor, resulting in visceral hemorrhage and death. The mother's tissues are endangered by reason of the abnormal prolongation of the pressure of the head during efforts at rotation, while her life is imperilled by the added risk of septic infection and exhaustion.

The treatment of such abnormal rotation would rationally consist in an effort to supply the one or more factors already described that may be deficient or perverted. Although the physician cannot remedy disproportion in size between the head and the pelvis, the sooner he becomes aware of such disproportion the better for his patient. No woman should be attended during her first pregnancy unless her pelvis has been measured by her medical attendant. In making this statement we do not insist upon an elaborate measurement of the pelvis, but urge that three external measurements be invariably made. These are: the external conjugate, the distance between the anterior superior iliac spines, and the distance between the outermost points of the iliac crests. If the physician has the opportunity of making such an examination as early as the thirtieth week of gestation, he may, if necessary, be able to induce labor, thus securing a normal rotation of the occiput before disproportion between the head and the pelvis has gone so far as to endanger his patient. If he does not see his patient until she is considerably advanced in labor, the knowledge that her pelvis is smaller than the average will be of great value in preventing the futile effort to deliver a large head through a pelvis too small for it. In addition to the measurement of the mother's pelvis, an effort should be made to ascertain the comparative sizes of the head and the pelvis. This can be done by placing the patient upon her back, her thighs being flexed, while the fetal head is gently pressed downward into the pelvis by the examining hand laid broadly behind the pubes, the other hand steadying the fundus of the uterus. If more exact information is desired, one hand may be placed against the head by internal examination, while pressure is exerted with the other hand behind the pubes. A head that begins to slip into the brim of the pelvis under such manipulation is not too large to rotate successfully during labor.

Flexion of the head, necessary to secure anterior rotation, may be promoted and maintained by the employment of the hand, accompanied by the use of forceps. When the physician discovers that the occiput is turning posteriorly, while the head is but slightly flexed, if the patient be anesthetized sufficiently to permit the introduction of the hand, the occiput may then be drawn down, or the chin pushed upward, and flexion secured. If this effort fails, flexion may be secured by axis-traction with the forceps, as will be described in a succeeding paragraph.

Flexion and anterior rotation may be further facilitated by the posture of the patient; thus, if the back of the child be turned toward the left side of the mother and the occiput tends to rotate posteriorly, the mother should be turned upon her left side, with her thighs flexed and her shoulders bent slightly forward. This posture causes the fundus of the uterus, containing the body of the fetus, to fall toward the left side of the mother's spinal column, as it will be remembered that the uterus normally occupies a position of right lateral obliquity in the abdomen of the mother. This movement of the fundus from right to left, by gravitation, favors the turning of the occiput from left to right, and thus anterior rotation of the vertex is expedited. If the child's back is directed toward the right side of the mother and the occiput seems about turning toward the sacrum, the mother should be placed upon her right side, with her body flexed as has been described and her right side propped up from the bed by means of pillows. Gravitation of the fundus is thus favored, and anterior rotation is more likely to occur.

The posture often instinctively assumed by women, namely, that of kneeling strongly forward upon the bed, is one that favors flexion and anterior rotation. The fundus of the uterus falls forward, the head tends to flex and descend into the pelvic cavity, and the long axis of the fetus corresponds more perfectly with the direction of the axis of the pelvis.

In addition to posture, constant external pressure against the vertex sometimes favors anterior rotation of the occiput. Thus, I remember having seen a case so treated in the wards of a foreign hospital; the patient was placed upon her side and a small bag filled with sand was laid upon the abdomen against the vertex.

We now come to consider the last of the three conditions upon which anterior rotation depends, namely, the expulsive force of the uterus and abdominal muscles, and the resistance of the pelvic floor. If the former is deficient, a suitable stimulant to the nervous system is indicated; thus tea, coffee, alcohol and quinine are most available; it is rarely necessary to employ ergot, and exceptionally the faradic current of electricity has been found useful. A narcotic that causes labor to cease absolutely for a time, while the patient sleeps, has often been found of value, the patient on awakening rousing to renewed activity. Direct stimulation of the uterus by rubbing the abdomen, and by pressure exerted upon the head in the axis of the pelvis, may carry to a successful parturition a labor lingering in its last stage. Again, anesthesia of a moderate degree may temporarily remove the depressing influence of pain and cause renewed uterine activity.

While such expedients are frequently successful, yet the forceps is very often the last resource of the practitioner. In this, as in all forceps deliveries, two methods are to be distinguished. One is that which all that use forceps desire to carry out, namely, the application of the blades accurately to the sides of the child's head; this requires a forceps modelled after French instruments, or shaped like the familiar blade devised by Davis, of London.

The other method of applying the forceps is that recognized as a valuable expedient, although not the ideal method of operating; this is the application of the forceps to the sides of the pelvis, and suggests the employment of an instrument modelled after the forceps of Simpson, of Edinburgh. In the first instance, forceps and head rotate together; in the second, the head rotates in the forceps, the blades remaining in the axis of the pelvis at the sides of its cavity. The first method requires for its safe performance a very accurate diagnosis of the precise location of the occiput; this will usually require anesthetizing the patient and the introduction of nearly all or of the entire hand within the vagina. In the second method the occiput may not be definitely located, although its absence from its usual location may have been determined. The forceps is then applied to the sides of the pelvis, traction is made gently with the pains, and between the tractions the grasp of the forceps is relaxed, the head rotating within the forceps-blades, so that each application is virtually a new one.

Neither use of the forceps is skilful that does not at the same time employ axis-traction. All obstetricians are familiar with the simple manipulation of performing axis-traction with the hands, grasping the handles of the forceps with one hand and raising them, while the other presses downward and backward upon the instrument at the shank. If the case be a difficult one, this requires for its successful performance very considerable strength in the hands and wrists. The axis-traction forceps of Tarnier and those modelled after it represent an established method of securing axis-traction in these cases. The Tarnier instrument, however, is not convenient for the ordinary exigencies of confinement; it is too heavy, too large, and too expen-

sive. Poullet, of Lyons, in a thesis described the application of the tapes as tractors to secure axis-traction. Many had already employed this, or a similar device, by passing a tape or cord around the shank of the forceps, and forming a loop into which the foot of the operator could rest, and by downward traction assist in the delivery. Poullet has modified and made more simple his use of the tapes, as shown in his most recent instruments. I applied the tapes, as first suggested by Poullet, to the Simpson forceps for the purpose of meeting the indications in those cases in which the occiput tends to rotate posteriorly, and in which the Simpson forceps applied to the sides of the pelvis seems most clearly indicated. The tapes have been similarly attached to the Davis forceps for cases in which that instrument seems most suitable; my experience leads me to prefer the Tarnier forceps in cases in which the instrument can be applied accurately to the sides of the head.

In using the forceps with the tapes no extra device for holding the instrument tightly upon the head is necessary. As traction is made, the tapes tend to draw the blades together; thus, in using the Simpson forceps, care should be exercised that the blades do not approach too closely.

In using either form of instrument, but moderate force is needed to effect delivery, provided axis-traction be made; the failure to perform axis-traction accounts for many of the difficult and dangerous cases of forceps-delivery. The head should be kept thoroughly flexed during its exit from the genital tract; the use of axis-traction has largely done away with that function of the forceps said to favor rotation. No one would attempt to forcibly twist a vertex in the pelvis; the difference between traction in the axis of the pelvis and the attempt to deliver without such traction can never be appreciated without a practical experience with the two methods. The former is a difficult, tedious, and laborious task; the latter is a matter of much less difficulty. As illustrating the method of favoring rotation by axis-traction with the Simpson forceps, the following case, reported originally in the first volume of the *Philadelphia Hospital Reports*, may be described:[1]

M. H., thirty-six years, an Irish domestic, unmarried, a unipara, was admitted to the hospital October 16, 1889, in a fairly good condition. While awaiting delivery she suffered from numerous severe attacks of asthma, and was found to have emphysema, with some dilatation of the right ventricle. Examination of the heart revealed no valvular lesion, and examination of the urine showed an absence of albumin and of casts. For the relief of the asthma, grindelia robusta, potassium nitrite, and soda, with chloroform-inhalations, were employed. During the woman's stay in the obstetric ward her general condition did not improve, the attacks of asthma increasing in frequency, the patient becoming anemic, irritable, and weak. About three weeks before labor, albumin in considerable amount was found in the urine, and about a week later the legs and feet became edematous.

Labor began Tuesday, December 24, at 10.30 P.M., the patient reaching the maternity ward at 10.30 P.M., December 25, 1889. At this time she was weak and irritable; she suffered from dyspepsia and complained of pain in the back. The os was patulous to one finger; no presenting part could be felt, polyhydramnios being present; the uterine contractions were infrequent, of slight force, but caused great suffering. The first stage of labor lasted sixty-two hours, the general condition of things remaining much as described; the abdomen was enormously distended, tense, fluctuating; the fetal heart was distinctly heard low down in the right flank. The position of the fetus could not be made out by palpation. The patient became weaker, the pulse losing in volume and increasing in frequency to 115. At an early hour in the morning of December 28th the membranes ruptured, and a large amount of greenish liquor amnii escaped, but the head, which presented in the right occipito-posterior position, prevented the escape of all. It was now found that the woman's bladder was full of urine, and catheterization was necessary. Still the head failed to descend through the pelvis, which was not markedly contracted, the measurements being: Spines, 23.5 cm.; iliac crests, 26.5 cm.; external conjugate, 18 cm.; right diagonal, 22 cm.; left diagonal, 21 cm.; trochanters, 28.5 cm.; circumference, 85 cm.

The contractions of the uterus diminished in force, and at 12.30 P.M., December 28th, the patient was anesthetized with chloroform; Simpson's forceps, with the Poullet tapes attached, was applied, and the head delivered. The cord was wound twice around the neck. Delivery was difficult, consuming considerably over an hour; the occiput remained posterior until just before delivery, when it quickly rotated forward. The grasp of the forceps was relaxed between the tractions to allow rotation. Double episiotomy was practised, and no considerable laceration occurred.

In bringing this paper to a conclusion, I desire first to draw attention to some errors that I think not uncommon in the treatment of these cases. Of primal importance in this report is the neglect of the effort to measure the patient's pelvis when possible, and when this is not practicable to estimate the comparative sizes of the head of the child and the mother's birth-canal. In this the profession must educate its patients, and this can be done only if methods of examination are conducted without exposure, without violence, and in a kindly and skilful manner. It is my custom to teach students to examine the pelvis, diagnosticate the position of the child and its presentation, and ascertain whether

[1] Philadelphia Hospital Reports, vol. i, p. 229.

the head is likely to enter the pelvis readily, while the patient remains covered by one thickness of linen. We can no longer comfort ourselves with the remark that American-born women rarely have contracted pelves; this statement is not strictly true, and the large number of foreigners coming to our country show frequent examples of varying degrees of pelvic malformation. The skilful obstetrician, by his knowledge, avoids prolonged and disastrous labors, and such good results are impossible without a skilful examination of the pregnant patient. If a large head be detected at the brim of the pelvis, scarcely able to enter, and showing a disposition to rotate posteriorly, it will be found better practice in many cases to perform the conservative Cæsarean section, saving the lives of mother and child, rather than subjecting the child's life to great risks and exposing the mother to serious injury in delivery.

I desire, secondly, to draw attention to the efficacy of posture in favoring rotation of the occiput when the head has entered the pelvis. Whether it be that the patient lies upon the side toward which the occiput is pointing, or whether she inclines the pelvis forwards, I am convinced from observation that posture is a valuable adjunct in the conduct of such cases. I desire also to criticise that method of examination consisting in the introduction of but a portion of one or two fingers in the effort to make an accurate diagnosis of the location of the occiput, and to favor its anterior turning. The practitioner should prepare himself to apply the forceps if necessary, and then anesthetize his patient to obstetric anesthesia, preferably with chloroform; he should introduce so much of the hand as may be necessary to make an accurate examination of the entire vertex. In the intervals between the pains he will be able to favor anterior rotation, and when he has thus brought the vertex in front of the middle of the pelvis, without removing the hand the forceps may be applied and the labor terminated.

Third. The forceps is often applied too soon, thus neglecting one important factor in anterior rotation, namely, the resistance of the pelvic floor. If the forceps be applied before the head has had an opportunity to rotate upon the pelvic floor, its posterior turning is often favored by the instrument rather than its anterior rotation. On the other hand, the forceps is often applied too late, when flexion has become impossible by reason of the persistence of partial extension, the head becoming impacted upon the pelvic floor in this unfavorable position. The life of the child has frequently been lost in such cases before the final effort at delivery is made, and when such is the case craniotomy is often the only rational procedure.

In conclusion, I would urge the following as points of importance: First, the adoption of the simple nomenclature already stated, which has borne the test of usage on the Continent of Europe, and which will render more comprehensible the mechanism of labor. I refer to the designation of two positions only for each presentatation, anterior or posterior rotation being designated, as the case may be. Second, the importance of pelvimetry and of the comparative estimation of the sizes of the head and the pelvis is paramount; by the second of these I mean the careful estimation as to the degree of engagement of the head, and if the head has not engaged, pressing it gently into the pelvis by supra-pubic pressure, the patient being, if necessary, partially anesthetized. Third, when the head is proportionate in size to the pelvis, and lingers upon the pelvic floor by reason of failure in expulsive force, the child's life and also the mother's safety being in danger, the forceps should invariably be used with axis-traction. The forceps should be used in accordance with the possibilities of the case, and that form of instrument should be selected that was intended for such possibilities. Whenever practicable, forceps designed to be so applied should be accurately placed upon the sides of the child's head, axis-traction made, the head and the forceps rotating together anteriorly. When such accurate apposition is impossible, forceps modelled for application to the sides of the pelvis should be employed with axis-traction, the forceps making as little pressure as possible upon the head, the blades being relaxed after each traction so that rotation anteriorly may occur between the blades. Fourth, a conservative Cæsarean section may be indicated if a living child, with large, firmly ossified head, presents with a posterior rotation of the occiput, the head failing to descend into the pelvic cavity; craniotomy may be indicated if such a child has perished during its entrance into the pelvis.

THE GENESIS OF CROUPOUS PNEUMONIA.[1]

BY WILLIAM W. PENNELL, M.D.,
OF FREDERICKTOWN, OHIO.

FROM being regarded as the result of a common cold to the more scientific opinion that it is the effect of a vegetable microörganism acting upon the animal economy; from being supposed to be a local inflammation to the view that it is a zymotic or essential fever, with pulmonary lesions, only the general causes of pneumonia are known, the specific being undetermined and a matter of conjecture. Under such conditions it is held the rightful duty of every observer along the line to cast his mite into the general treasury of such knowledge, that the

[1] Read in the Section on Medicine of the American Medical Association, Detroit, Mich., June 9, 1892.

causal agency may ultimately be disclosed, as has occurred in other diseases. The subject-matter of this paper is mainly constituted of personal observation and deduction, and is offered for what it is worth.

Is pneumonia a local disease or an essential fever? The question is rather antiquated and behind the times. As a local inflammation, attended by a symptomatic fever, its causes must be similar to those of any other local inflammation that may have been produced by any thermal, toxic, chemical, dyscrasic, or mechanical influence. Such a process is almost necessarily attended by fever, a resultant of absorption of certain materials from the affected part, whatever the cause, or arising from a nervous disproportion between the production and dissipation of heat. That a pulmonary inflammation should differ from one of some other organ is not clear, unless its course, effects, and morbid anatomy are distinctive and unless only certain causes always produce it to the exclusion of every other. Simple inflammations often follow slight causes when the bodily health has been lowered by some antecedent influence; the cause not abiding, the process soon subsides, the exudate being absorbed and the part assuming its normal state. So a fleeting or an abiding cause regulates the duration of any morbid process.

In local inflammations, the location and surroundings in which exudations occur are the parts upon which the causative agent had been most forcibly exerted, the previous condition of such a part being unknown and not observable. The course of such an inflammation will be influenced more by the condition of the individual than by its cause or causes, such condition determining the sthenic or asthenic form of the inflammatory process. Its duration is governed by the transient or continuous origin, and is classified by the anatomic changes observed in the part inflamed.

Acute inflammations, due to transient causes, usually end in resolution and restoration of function. If the general health have been greatly impaired previously or during the attack, the inflammation may result in suppuration or purulent infiltration.

Yet it is the rule, even in the unhealthy, for the inflammatory process to stop short of abscess. Purulent formations, when they do occur, are generally supposed to be of bacterial origin, as bacteria are believed by many to cause every form and grade of inflammation.

In severe, acute inflammatory states attended by pus-formation, special microörganisms are well known, and are always found to be present. It is true, also, that organisms having no known noxious influence, either by themselves or by their products, are generally abundantly present. It follows that most bacteria are innocuous and incapable of producing inflammation, either by their intrinsic harmlessness or by their inability to carry the citadel of fairly normal tissues. No doubt there are bacteria capable of producing every kind of inflammation, yet incompetent to excite suppuration. To me it has seemed that there must be some agency to weaken the normal resistance of tissues before these organisms can operate successfully, and that bacteria, as a causative agency, are secondary and considerably overestimated. Those usually found asssociated with pneumonia are present in health and are apparently harmless—for aught we know are benign in disease, as the inflammations produced from pure cultures usually differ from the primary.

In croupous pneumonia we have a typical fibrinous inflammation, beginning with congestion and serous exudation, resulting in a filling of the alveoli and infundibula of the lobe affected with inflammatory products, or hepatization, and ending usually in resolution and occasionally in purulent infiltration. So far, the process resembles any other local inflammation. In its course, duration, character, and termination, it is in some respects analogous to specific diseases; in others the analogy is quite lost. That some cases are wholly specific, we believe. Some authorities,[1] however, assume that the disease has every feature of a zymotic disease in the same sense as cholera, typhoid fever, smallpox, etc., and that a house having bad ventilation and sanitation, and having been once infected by pneumoniacocci, becomes their abode, because they find suitable soil for growth and multiplication, and are received into the system probably by inhalation, thereby causing frequent recurrences of the disease among the occupants. If this picture is absolutely accurate, then the same cleansing and fumigation is necessary in most houses after an attack of pneumonia as is needed after every case of smallpox, diphtheria, and allied diseases. The crowded tenement-houses of cities no doubt furnish such instances, but in the country and smaller towns, in the writer's experience, nothing of the kind has been encountered. Indeed, this seems to me an extreme view, because poor ventilation and bad sanitation in their entirety have often been found, while the infectious character of pneumonia has not been observed.

If pneumonia is infectious or contagious, then all that I have seen in over seventeen years has been of the sporadic variety—quite a different experience from that of other infectious maladies. I have seen typhoid fever and diphtheria attack one member of a family after another; I have seen several stricken at the same time; yet nothing of the kind has been observed in regard to pneumonia. Were this view

[1] Keating: Dis. Children, vol. ii, p. 588.

the usual experience of physicians everywhere, the specific character of pneumonia would have demonstrated itself long ago, as is daily demonstrated by zymotic diseases in every clime.

As telling against the zymotic nature of pneumonia, compared with typhoid fever: The former has been observed in the same individual a number of times; the latter but once. Pneumonia leaves the individual prone to subsequent attacks; whereas typhoid fever appears to confer immunity. This tendency to other attacks of pneumonia makes it resemble diphtheria, but, unlike that disease, it is not contagious. Then, no prodromal period has been observed, as in zymotic disorders, the onset being sudden. The course was generally severe and always short and not followed by sequelæ, as in typhoid fever, measles, diphtheria, etc. Pneumonia terminated by crisis, save in cases ending in purulent infiltration or abscess; in these few, if death did not soon take place, recovery was retarded, as in other purulent formations.

I do not remember a case terminating by lysis; and yet a critical ending in zymotic disease has been the exception—indicating the gradual elimination of the poison, or rather, perhaps, the return of the bodily resistance to bacterial infection. Inasmuch as we are taught that pneumonia is wholly a specific fever, I have often asked myself, What is it that destroys the poison so quickly and so thoroughly? Is this poison deposited in the exudate, and thereby rendered innocuous—a quarantine established by Nature for her own protection? I cannot fathom it.

To myself, not looking at the question from a bacterial standpoint, it has appeared that crisis occurs in two ways: 1. In all favorable cases, in from three to seven days, there is sufficient discharge or drainage to secure resolution, just as I have seen slight wounds that some good-souled mother had hermetically sealed by adhesive plaster that prevented a small amount of pus escaping, followed by chill, fever, and delirium, that terminated as soon as the plaster was removed and drainage was established. 2. The cause that excited the inflammation exerted its influence for but a short time, the resulting disturbance being the effects of an agent that acted traumatically and then withdrew, leaving a simple exudation.

The fact that the encapsulated coccus of Fraenkel has been found in the tissue of pneumonic lungs in 92 per cent. of cases examined is certainly inconclusive, because that germ is always present in the saliva of healthy individuals, and, for aught we know, in the lungs also; beside, their absence in even less than 8 per cent. renders the argument worthless. The character played by the pneumonia-coccus of Friedländer as an exciting cause of those pneumonias terminating in suppuration is unknown, but certainly the conditions favorable to the formation of pus are abundant, just as they are in pleuritis, hepatitis, and nephritis.

Another objection to the conception of the specific nature of pneumonia is that the disease is frequently aborted by antiphlogistic treatment, a rather infrequent result in zymotic diseases. I do not remember having seen a case of specific illness aborted, but I have seen cases prevented. At a meeting of the Philadelphia County Medical Society, April 13, 1892,[1] Dr. Hiram Corson read a paper on "Pneumonia and Its Treatment," in which he advocated venesection as a controlling remedy of the highest order, and states this to be the result of "over sixty-five years of careful, anxious observation." The results of his long experience are worthy of consideration, even if we no longer bleed.

On every hand appear the opinions of different observers as to the specific or non-specific nature of pneumonia. It appears that the idea of the zymotic origin of pneumonitis is widely diffused and gaining ground, and they that cannot see the way so clearly are in the background and perhaps moss-grown, not having given bacteriology as full study as it deserves. These fossils, however, admit the specific origin of known zymotic diseases.

In my own experience the immediate causes of pneumonia are few. Common cold is not one of them, for were this a cause pneumonitis would be wondrously prevalent when colds are abundant. On the other hand, continued exposure and exertion during seasons of the year having great thermometric range and conditions connected therewith would, in certain individuals, excite pneumonia; while others similarly exposed would escape.

I have seen the "dust chill" experienced by farmers after threshing in the heat followed by as typical a pneumonia as that consequent upon a prolonged drunken spree, while others similarly engaged entirely escaped. I have seen pneumonia as fully developed secondarily to chronic cystitis, arthritis, uremia, measles, etc., as it has been seen following vicious or licentious habits, yet many persons similarly exposed remained exempt. I have seen pneumonia as complete following the accidental inspiration of a portion of hazel-shell into the right bronchus, where it remained a few hours, being expelled by violent coughing; while contrarily, a child had a coiled piece of tin in the same situation for twenty-six days, without such effect. I have seen pneumonia follow the inhalation of dust by sawyers, the small particles being probably aspirated into smaller tubes and alveoli, a crisis being favored by expectoration. I have seen pneumonia follow unusual exposure to cold and wet in conditions of

[1] Journal Am. Med. Assoc., May 14, 1892.

hunger, debility, or intoxication, while some persons could withstand similar exposure with impunity, so far as pneumonia was concerned.

Sex makes no difference under similar depressing influences, and persons of an age anywhere from six months to forty years, especially in infancy and youth, are most liable to the disease. Pneumonia has been observed in early life, before a vigorous constitution is developed and when tendencies are uppermost; or in adult age, when the circumstances surrounding an active stage or when depressing agencies brought to the surface the latent tendencies of the individual. The degenerations and waning powers of old age have been nearly the same in effect as infancy or youth.

I have seen pneumonia in the wake of bad hygiene, poor sanitation, enervating habits, and overwork, and yet conditions the reverse of these were found inadequate to prevent it if some physical debility existed. To me it appears that some individuals and certain families are more disposed to this form of inflammation of the lungs than others, and that three factors alone are necessary to produce a pneumonia: 1. A predisposition or tendency. 2. Loss or lack of normal tissue-resistance. 3. An exciting cause. The result would be a pneumonic inflammation, alteration of the blood, fever and nervous phenomena.

1. Tendency may depend upon a previous pneumonia, dyscrasia, or family history of pulmonary weakness, favored by depressing, weakening habits and pursuits, age and surroundings.

2. While all the associated predisposing conditions and influences act on all alike, not all succumb to the development of pneumonia, because not in possession of essential predisposition.

3. The first two requisites being present, any exciting cause, be it dust, season, poisonous materials in the blood, microörganisms, or the manifold and diverse circumstances that tend to inflammation, would develop a pneumonia, its degree, course, and termination being influenced by the exciting cause: an inflammation not purely local nor yet bacterial or specific, but due to a systemic condition that permits many and diverse agencies to excite, rather than some other form of disease. It follows that a patient should be made and kept as aseptic as possible until the crisis is thoroughly established.

CLINICAL MEMORANDA.

A NEW OPERATION FOR LACERATED PERINEUM.

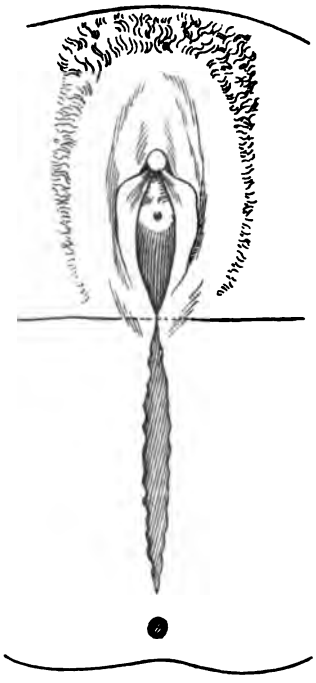
BY JOSEPH A. MULLEN,
UNDERGRADUATE OF JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

THE operation herewith proposed for the restoration of a lacerated perineum is as follows. For convenience of description I have divided it into different stages, and for sake of brevity of illustration I have taken a median tear:

1. The first step is to freshen up with scissors or scalpel the inner and lateral surfaces of the laceration, the same as would be done in Hegar's operation, or the simple median operation.

2. After this has been performed, temporarily suture together the two anterior extremities of the lacerated perineum, so as to gain a solid stay for further steps in the operation.

I



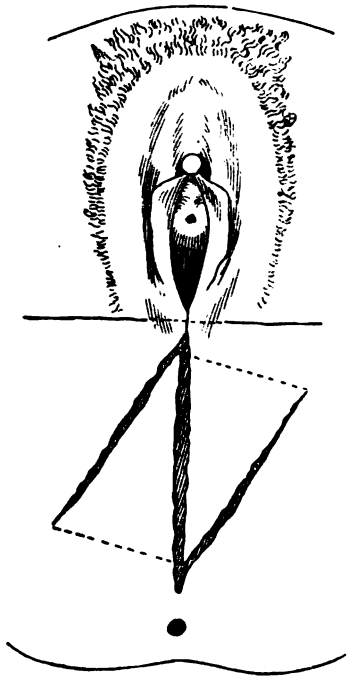
3. The first incision will be triangular in shape, and can be made on either side, commencing, in this case, on the right side, from one-eighth to one-half of an inch from the anterior margin of perineum, the apex being toward the latter and the base toward the interval between the anus and the ischial tuberosity. Begin the apex on the right lateral perineal margin, as already stated, making the incision as deep as necessary, and extending it to an angle of from twenty to forty degrees, and continuing it until a line drawn transversely from its basal extremity to the laceration would meet the latter from one-eighth to one-half of an inch from the anal extremity of tear. This distance will, of course, vary greatly, the variations depending on the amount of tissue present.

4. The second flap will be the reverse of the preceding one, *i. e.*, the apex will point in the direction of the rectal extremity of the laceration, beginning from one-eighth to one-half of an inch from the anal extremity of the tear, cutting upward and outward, so that the base of the flap will be continuous with a transverse line drawn from its extremity to a point from one-eighth to one-half of an inch from the anterior perineal margin in the median line. The depth of these incisions will

depend upon the tissue present and the size of the perineum.

5. After these two triangular flaps have been made, both being of equal dimensions and of whatever depth is desired, dissect the under surface free from the underlying tissue. When this has been thoroughly done, lift up with forceps the apex of the left triangular flap with

II



one hand, and with the other grasp the apex of the right flap, depressing it and at the same time gently pulling the left flap to the right side of the perineum and the right flap to the left perineal side, fitting them accurately in position. The apex of the right triangle snugly fits on the inner or ischial aspect of the base of the left flap, looking toward the fourchette; the apex of the left triangle will adapt itself to the base of the right flap, toward its ischial or inner side.

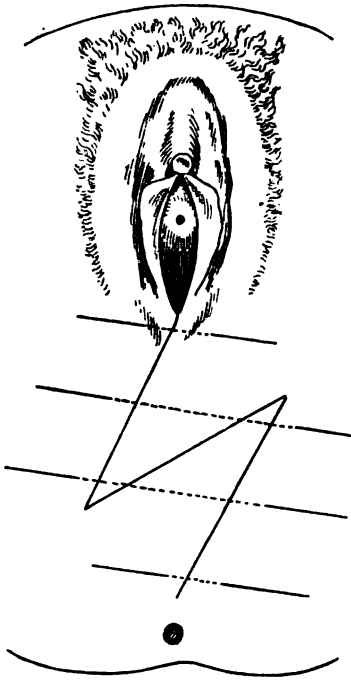
When the two flaps have been carefully adjusted, all that now remains is to suture the parts together. To get the flaps of the proper size requires no especial skill whatever, only the necessary care and attention requisite for any perineal operation. The dissections of the flaps are no more difficult than those in Tait's or in Martin's operation.

I believe it much better to commence suturing from the posterior extremity of the laceration, passing the needle, armed with the necessary suturing material, from the left to the right side through that portion of the perineum external to the base of the right flap, and so on to the anterior perineal margin.

The advantages of this operation are several: No tissue is wasted excepting that removed in freshening the lacerated margins (if they be old), and with this economy of tissue there is no corrugation or puckering of the perineum, which, among other disadvantages, is very likely to render the perineum smaller, thereby increasing the tendency to subsequent rupture. The saving of tissue, as in operation on any portion of the body, is of the utmost importance in enhancing the usefulness of the parts.

By the foregoing method the strength of the perineum is greatly increased. This will become evident when

III



the position and shape of the flaps are considered. The anterior extremity of laceration will have been pulled to one or the other side, bringing intact tissue into the median line, and there will also be a bar of cicatrical tissue running obliquely across the perineum. If properly performed, the operation will leave the perineum fortified by cicatricial bands of support. But, after all, the most essential element in all operations on the perineum is to retain as much tissue as possible, and also to preserve the integrity, shape, and size of the perineum, and to leave it as near as possible in the condition in which it was before laceration.

A CASE OF TUBERCULOUS ADENITIS WITH GENERAL ALOPECIA AND PRURITUS.[1]

BY JAMES H. DUNN, M.D.,
OF MINNEAPOLIS, MINN.

THE case of tuberculosis of the lymph-nodes herewith reported, presents some phases in its clinical history that were to me quite novel, particularly the general alopecia and pruritus, which during the first year of the disease were the patient's chief plague.

Early in April, 1890, D. McA., an Irish-American

[1] Read in the Section of Dermatology and Syphilography of the American Medical Association, at Detroit, June 7, 8, and 9, 1892.

farmer, twenty-one years old, came under my observation. His father, mother, and several brothers and sisters were all living and healthy. Of more distant relatives he knew but little, but he denied any rumor or knowledge of a tuberculous family record. He has been a healthy and athletic young man, five feet nine inches in height, with a weight of 185 pounds. His hair and complexion were light; his eyes bright and blue. For several years he had each autumn been engaged in "feeding" a threshing machine, While employed in this very dusty work during the fall of 1888 he began to cough, without expectoration; he noticed marked enlargement of his cervical glands, and began to be annoyed by a terrible itching of the surface of his whole body. These troubles were attributed to his dusty employment, but after his fall work was over, the cough and pruritus not abating, he consulted a physician, was better for a time, and able to work until the fall of 1889, when, while again threshing, he became much worse, the pruritus especially being so intense that he came to the city and consulted a dermatologist—my esteemed friend, Dr. Vanderhorck.

In April, 1890, his parents sent him to St. Mary's Hospital, where he fell into my hands. At this time the lymphatic glands of the cervical and axillary regions were much enlarged, varying in size from a hazelnut to a hen's egg. None of these glands had suppurated, nor did they in the further course of the disease show any of the usual tendency of tuberculous glands to break down. On the right side of the neck, the mass of tumors was so great as to constitute a noticeable deformity. Respiration was very labored, and an almost incessant dry, barking cough plagued the patient night and day. He was incessantly rubbing and scratching. The skin was remarkably anemic, somewhat thickened, and slightly pigmented from long scratching. There was no eruption, excepting the scratch-marks, which were most numerous upon the legs, next so on the thighs and forearms, then on the arms. The whole surface itched, and, while conversing, the man was always engaged in rubbing the face, the scalp, or some other part. His body was almost devoid of hairs, which had fallen out since this itching began. There was a very scanty and scattered growth upon parts of the scalp, but absolutely none elsewhere; eyebrows, eyelashes, pubic hairs, etc., were wanting. His appetite was poor, and he was much reduced from loss of sleep.

On examination of the chest by several physicians there was found to be extensive dulness over the mediastinum, both in front and behind, and extending some distance to the right and left of the sternum, which all agreed was due to an extensive growth or mass of greatly enlarged tracheo-bronchial glands. The spleen was not perceptibly enlarged. After considerable study and observation of the case, I concluded that it was one of Hodgkin's disease, the pruritus and alopecia being due to pressure-disturbances of the sympathetic system.

As I was unable to relieve any of his symptoms I sent him to my colleague, Dr. J. W. Bell, who put him upon cod-liver oil and arsenic, I believe, remedies that we had tried in vain, and in less than a week he became, as he said, almost a well man. The enlarged glands diminished in size; the cough nearly ceased; the pruritus abated; he slept and ate. Of course, the glandular enlargement and all the attendant symptoms had several times in the course of the disease receded and advanced, but never, since the disease had been so bad, had the change been so marked. He left the hospital July 11th in great hopes, though his family was informed that the respite was only temporary.

This lull in the fury of the disease lasted about one month, until August; then the old symptoms all returned. I saw him no more until at the post-mortem examination, but learned from his father and attendants that during the period of betterment his hair grew quite thick and he gained several pounds in weight. After his relapse he soon got into his old condition, with incessant cough, pruritus, alopecia again almost universal, sleepless, pale, and ran along in about this condition until November, 1890, when all his symptoms became more distressing and his abdomen and lower extremities began to swell. The abdomen was tender and painful. During the winter he failed in every way, becoming considerably emaciated. He died in July, 1891. For some weeks before his death the abdominal swelling had subsided and the legs and feet were less dropsical. Whether or not he had fever during this latter course, which corresponded with a widespread invasion of general tuberculosis, we have no record, but during his stay in the hospital in the previous summer there were no disturbances of temperature.

At the post-mortem examination, held twenty-four hours after death, the body was emaciated, the lower extremities moderately edematous, and, with the exception of a very sparse growth of light hair on parts of the scalp, the body was entirely destitute of hair. The pubic, axillary, and superciliary hairs, as well as the eyelashes, had fallen out. There was no trace of beard and but little hair on the head. There were many abrasions, particularly upon the thighs and legs, caused by scratching. The various chains of lymphatic glands were all more or less enlarged. Some of the cervical glands and the axilliary glands on either side were of the size of a walnut. The inguinal glands were not much enlarged. On opening the chest, the heart was found to be normal. The mediastinum was literally packed with a great mass of large, roundish, and irregular tumors, clearly a huge growth of all the bronchial and other lymphatic glands of this region. They were matted together, so as to be very difficult of separation, but many were larger than hens' eggs. The pleural cavities were totally obliterated by adhesions, and the lungs were everywhere studded with tubercles of the size of grains of wheat.

On opening the abdominal cavity, no fluid was found, but all the organs of this cavity were bound in one mass by more or less firm adhesions, and the peritoneum was everywhere studded with tubercles, not of the finer or genuine miliary variety, but somewhat irregular bodies, from the size of sago-grains to that of small peas. As far as the eye could detect there were none of the millet-seed sized, whitish-gray, hard nodules, sometimes seen in acute miliary tuberculosis. These were larger, softer, and more caseous in appearance. The abdominal glands were all greatly enlarged, many of them varying in size from that of walnuts to that of hens' eggs.

The omentum was a thick, hard, nodular mass. The

liver was somewhat enlarged, everywhere adherent to surrounding parts, but it presented no visible tubercles in its interior. The capsule of the spleen was very thick and dense, and so intimately adherent to adjacent parts that it was extracted only after long and forcible tearing. The organ was considerably enlarged, but no tubercles were seen in its parenchyma. The kidneys were, like the other organs, firmly imbedded in the thickened peritoneum, but they appeared normal on section. All the internal organs of the chest and abdomen, excepting the heart, were bound into one mass by the adhesions.

The cause of death was general tuberculosis arising from tuberculous glands.

Among the occasional sources of pruritus, I believe Kaposi and others mention lymphadenoma or Hodgkin's disease, and it is perhaps not to be marvelled at that so protean a disease as tuberculosis should give rise to a great variety of symptoms. Probably no other specific infection, excepting the syphilitic, gives rise to such varied symptom-complexes as does the tuberculous. Outside of the pulmonary and other more ordinary manifestations, its ravages are often most curious. The autopsy not rarely yields surprising results.

A CASE PRESENTING THE SYMPTOMS OF LANDRY'S PARALYSIS, WITH RECOVERY.[1]

BY F. T. MILES, M.D.,
PROFESSOR OF PHYSIOLOGY AND CLINICAL PROFESSOR OF DISEASES OF THE NERVOUS SYSTEM, UNIVERSITY OF MARYLAND, BALTIMORE, MD.

M——, a native of Baltimore, thirty-three years old, well-built, rather corpulent than muscular, temperate in all his habits, and accustomed to lead a very quiet life; had been in good health previously to the attack about to be described.

On November 26, 1891, he caught cold, for which he took quinine and mustard baths. On November 28th he got wet by rain. He now experienced intermittent pain in the calf of the leg. About December 1st he observed, to use his own language, "a cold feeling across his toes, as if he had dipped them in cold water; also the same cool feeling attacked the left upper lip [*sic*], as if it were chapped and air blew on it." These ill feelings continued till December 6th. On that day he was about the house, as usual; but in the afternoon, on attempting to go up stairs, in his own words, "very much to my surprise, I found I did not have the power to raise the left leg from one step to the other without serious exertion in the way of dragging it." In a few days he took to his bed, "being unable to hobble around any longer." The feeling of coolness and numbness continued to get worse, and to extend upward on his legs to the knees, and also invaded the hands and arms to the elbows, the muscular power steadily failing from the lower extremities upward.

The patient was under the care of Dr. F. Chatard, of Baltimore, who kindly asked me to see him, and to whom I am indebted for many details of the case. I first saw the patient on December 17th. His lower limbs were then completely paralyzed, but not emaciated or flabby. The muscles of the trunk and belly were greatly weakened. The man could make a wriggling motion with his hips, but could not sit up or turn on his side. He coughed, but with very little force. The hands and arms were quite weak, with a tendency to assume the position of wrist-drop. The shoulder-movements were good; the face was not affected. Sensation was apparently normal, except that the sensation of tickling on the sole of the foot was nearly or quite lost. The power of localizing correctly any point of the foot touched was retained. Farado-cutaneous sensibility was apparently normal. The man could distinguish hot and cold objects. No pain was elicited on pressing the muscles. The reflexes, both superficial and deep, were completely lost.

Tested with the faradic current, the muscles responded, as nearly as I could judge, normally. The patient's subcutaneous layer of fat was thicker than usual. To the galvanic current the muscles responded normally, contracting quickly without a sign of degenerative reaction, with no quantitative or qualitative alteration. The muscles also contracted from nerve-stimulation. The sphincters were absolutely intact. After this, for three or four days, the paralysis increased in the upper extremities until the man could no longer use his hands. The abdominal muscles became so weak that he could not cough. The facial nerves now became involved in all of their branches, the more decidedly, however, on the left side. The patient could not frown, could not close the left eye, could with effort barely approximate the lids of the right so as to make them touch, and could not whistle. Articulation was somewhat defective from the weakness of the labial muscles. The tongue was unaffected, except that the patient stated that it felt thick. He was restless, and said that he felt as if he was being smothered by his own weight.

The breathing became oppressed, and he had several attacks of threatened suffocation. (The action of the heart was not affected, either in frequency or force.) At this point the progress of the disease seemed to be arrested, and then improvement, especially of the respiratory symptoms, began and proceeded somewhat rapidly, the face and arm recovering first. On the 1st of January, 1892, he could raise himself in bed; on the 7th he sat up on the side of the bed; on the next day he dressed himself; on the 13th he was able to walk alone; and on the 20th he was able to leave the house. I saw him about a month later. His limbs were not thinner than natural, though still a little weak. The patellar reflex was still absent.

This case seems to me worthy of record, because of the very close resemblance of its symptoms to those of Landry's paralysis. Indeed, I do not see why it should not be considered as a case of that disease. It is noticeable that the symptom of oppression and difficulty in breathing that usually closes the scene in fatal cases of Landry's paralysis was prominent, and appeared to lack but little in severity to have caused death.

Dr. Cramer, in the January number of the *Centralblatt f. Pathologie u. pathologische Anatomie*, after having given an admirable analysis of the best-studied cases of Landry's paralysis, concludes that "with the symptom-complex that we call Landry's paralysis, the pe-

[1] Read at the seventh annual meeting of the Association of American Physicians, held at Washington, May 25, 1892.

ripheral nerves alone, as well as the central nervous system with the peripheral nerves, may be diseased" (the peripheral nerves being in almost every case affected); and, moreover, that the origin of the disease is to be found in the toxic influences of invading microörganisms. From this standpoint there seems to me but little difficulty in supposing cases of varying severity and termination, as the central nervous system (the respiratory and cardiac centers) or the nerves of respiration are more or less deeply affected by the toxic agent. One point seems to be impressed by this case—namely, the difficulty, or rather impossibility, in certain cases, of differentiating between the peripheral and central (spinal) origin of symptoms, especially of paralysis. I think we should keep more in mind that the whole motor system—peripheral nerves, nerve-cells, and central tracts—is so much of a unit, that while the insults of disease may confine themselves to one segment of the apparatus, we may reasonably expect disease of one part to extend to others or all.

MEDICAL PROGRESS.

Cysticercus of the Vitreous Body.—At a meeting of the Society of Physicians of Zurich FICK (*Corr.-bl. f. Schweiz. Aerzte*, 1892, No. 9, p. 279) reported the case of a man who, six months previously to coming under observation, noticed a black spot before the right eye; three months later, vision was distorted, and a month later still, became cloudy. For nine days there had been total blindness, only light-perception remaining. The external appearance of the eye was normal. With the ophthalmoscope two masses and some diffuse changes were found in the interior of the eye. One of the masses was a grayish-blue vesicle, with a well-defined reddish-yellow margin, occupying the lower posterior segment of the vitreous body and oscillating with sudden movements of the eye. Vessels could not be seen on the cyst. The second mass, bluish-gray in color, bean-shaped, was situated in the outer upper segment, and was sharply separated from a whitish band in the vitreous body. At the upper extremity of this mass was a whitish area abundantly supplied with vessels. The retina presented diffuse striation; the vitreous body punctate and striate immovable opacities.

The patient was operated on a few days later, and together with the removed specimen was presented at a subsequent meeting of the Society. Some improvement in vision had taken place.

An Unusual Case of Empyema.—RUDOLPH (*Centralbl. für klin. Medicin*, 1892, No. 18, p. 361) has reported the case of a shoemaker's apprentice, eighteen years old, who, twelve days after an attack of pneumonia involving the lower lobe of the left lung and lasting a week, developed pneumonia of the upper lobe of the same lung. After the fifth day of the second attack the febrile movement became irregularly intermittent and occasional chills occurred. Unequivocal signs of an empyema soon manifested themselves. An inch and a half of the seventh rib was resected and two pints of pus were evacuated and the cavity was from time to time irrigated. There was some improvement, but the febrile movement persisted. The signs pointing to the existence of an encapsulated empyema above the situation of that first detected, a little more than an inch of the third rib was resected and four pints of pus evacuated. There appeared to be absolutely no communication between the two cavities. The patient ultimately made practically a perfect recovery; this was somewhat retarded, however, by the presence of a fragment of carious bone in one of the resection-wounds.

Conveyance of Tuberculosis by Bed-bugs. — DEWÈVRE (*Revue de Méd.*, No. 4) reports the case of a boy, eighteen years old, who developed pulmonary tuberculosis after having slept with a brother who had died of the disease. A third brother, with whom the second had slept, had likewise died of tuberculosis. The patient presented numerous bed-bug bites, and it was learned that the bed in which he slept contained a large number of the parasites. Thirty of these were taken and used in the inoculation of three guinea-pigs, all of which died of tuberculosis. Cultures of tubercle-bacilli were also obtained from the diluted and filtered pulp of fifty of the bugs. Cultures were also obtained from bugs taken from healthy surroundings and brought into contact with tuberculous sputum. The bugs must become infected directly from human beings, or indirectly through the medium of the expectoration, or by transmission from one animal to another. The transmission of tuberculosis from the bugs to the human beings remains an open question.—*Wiener medizin. Presse*, 1892, No. 62, p. 90.

Fatal Hemorrhage from the Esophagus in Cirrhosis of the Liver.—At a meeting of the Berlin Society for Internal Medicine, EWALD (*Berliner klin. Wochenschr.*, 1892, No. 23, p. 566), reported the case of a man, fifty years old, with symptoms of advanced cirrhosis of the liver, who shortly after the removal of fourteen quarts of ascitic fluid by puncture, suddenly, without pain or nausea, began to vomit blood. The hemorrhage was repeated, and on the following day death took place. In the absence of nausea, of actual vomiting, and of pain in the region of the stomach, rupture of an esophageal vein was suspected. At the autopsy the liver was found cirrhotic, the esophageal veins dilated and varicose and ruptured in two places. It would seem as if the removal of the pressure upon the abdominal veins by the evacuation of the peritoneal effusion had been followed by the presence of an increased volume of blood in the esophageal veins, which ruptured at the weakest points.

Treatment of Lupus with Tuberculocidin.—At a meeting of the Society of Czech Physicians of Prague, JANOVSKY (*Wiener medizin. Presse*, No. 19, p. 779) presented three of four cases of lupus under treatment with tuberculocidin administered subcutaneously and applied topically. In all, thirty injections had been made without noteworthy constitutional manifestations. In only one instance did the temperature rise as high as 100.4°. There was no visceral affection; albumin did not appear in the urine; the blood presented a state of slight leukocytosis. The local reaction was considerable, though by no means so intense as that which followed injections of tuberculin. Small and large pustules formed in the diseased areas, afterward undergoing desiccation.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

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SATURDAY, JULY 9, 1892.

THE CHEMICAL PATHOLOGY OF THE INFECTIOUS DISEASES.

THE problems of physiologic chemistry have heretofore been so baffling, and the solutions so unsatisfactory, that it is but little wonder that so few investigators have been attracted to the field of chemical pathology. The coarseness of the most delicate methods of investigation at the disposal of the chemist, compared with the extreme complexity of the substances with which he has to deal, the instability of the proteid bodies, the impossibility of determining the exact composition of the albumin-molecule, the difficulty in isolating pure materials—all these conditions offer serious obstacles in this study, and beyond the grouping into classes of the proteid bodies and their derivatives, little can be said to have been definitely determined. Despite all this, such researches have received a decided impetus from quite an unexpected quarter. Of late, special attention has been devoted to the examination of the more intimate relations between the specific microörganisms and the tissues of the body in acute infectious diseases; and perhaps the most interesting contributions to our knowledge of these processes during the past two or three years have been those dealing with the subject rather from a chemical standpoint.

The experiments of ROUX and YERSIN, in France, and of BRIEGER and FRAENKEL, in Germany, with the chemical products of LOEFFLER'S bacillus; the work of HANKIN on the "defensive proteids;" the action of the toxine and the production of the antitoxine of pneumonia, elaborated by the KLEMPERERS, of Berlin; the study of the chemical nature of tuberculin, by HUNTER, BEHRING, and others; the very striking effect of the proteins of the protoplasmic bodies of the bacteria themselves, demonstrated by BUCHNER and his assistants, at Munich—these and other similar researches, even though they have as yet yielded but few practical results, have opened up a wide field for speculation, and go far to illumine some of the possibilities of the intelligent application of chemical methods to pathology.

The latest, and by no means the least valuable, of such communications will be found in the Gulstonian lectures recently delivered by DR. SIDNEY MARTIN, in which he takes for his subject, "The Chemical Pathology of Diphtheria Compared with that of Anthrax, Infective Endocarditis, and Tetanus."

In his study of anthrax-infection, DR. MARTIN had already shown that the action of the anthrax-bacillus on proteids is analogous to that of the ferments of the ordinary digestive juices, resembling peptic digestion in the formation of albumoses, and tryptic digestion in that a portion of the proteids is broken up into non-proteid organic bodies, the leucin and tyrosin obtained as end-products from the action of trypsin being represented in anthrax-digestion by an organic base, the so-called "anthrax-alkaloid." These digestion-products of the anthrax-bacillus were found not only in test-tube cultures of the organism, but also in the blood, and particularly in the spleen, of animals that had succumbed to the disease, and it is important to note that the alkaloid was always more abundant than the albumoses. It was possible to separate the alkaloid from the albumoses, and by injecting these substances, singly and together, to compare the symptoms thus artificially produced with those characteristic of the disease. In this way it was proved that the albumoses are the fever-producers, while the anthrax-base (alkaloid) is the cause of the coma and death.

DR. MARTIN devoted the greater part of his recent lectures to the discussion of the chemical products found in the bodies of diphtheria-patients, the methods of isolating them, and the symptoms and histologic lesions to which they give rise. Briefly,

he concludes that the tissues of diphtheria-patients contain two series of abnormal substances: first albumoses, chiefly deutero-albumoses (indistinguishable chemically from the albumoses of ordinary digestion and from the anthrax-albumoses), and secondly, an organic acid, the former being present in larger quantity than the latter. Of the diphtheria-poisons, in contradistinction to the toxic products of anthrax-infection, the albumoses are much more harmful to the animal than is the non-proteid substance. A single dose of the albumoses of 0.084 gram per kilogram of body-weight, injected subcutaneously in a rabbit, caused death in twelve days, and at the autopsy the degenerative changes characteristic of the disease were present.

If these results are to be relied upon, and the experiments appear to have been carefully and conscientiously conducted, then it is to the albumoses in diphtheria that we must attribute the fever, the diarrhea, the loss of body-weight, the retardation of blood-coagulation, and the progressive paralysis of the muscles dependent on degeneration of the peripheral nerves. The injection of the organic acid, it is claimed, produces nerve-degenerations similar to those resulting from albumose-intoxication. There would appear to be some evidence for the view that the immediate action of the *bacillus diphtheriæ* in the membrane is to give rise to a ferment—the so-called secondary infectious agent—quite analogous to the pepsin and trypsin of the gastric and pancreatic juices, for while on chemical analysis the membrane itself is shown to contain very minute quantities of the albumoses, yet a single injection of the proteids precipitated from it will produce results like those obtained from multiple inoculations with the albumoses. The claim of DR. MARTIN, that the same nerve-lesions are produced by the albumoses and the organic acid of diphtheria would seem to require further proof, as there would always exist a possibility that such degenerations might be due not to the albumoses or to the acid, but rather to a toxic agent as yet unknown, most of which is precipitated with the albumoses, while a small portion passes over in the alcoholic extract.

In all the cases of diphtheria, natural and experimental, the central and peripheral nerve-organs were submitted to careful histologic examination; lesions were always found in the peripheral nerves, motor, sensory, and sympathetic, and were as constantly absent in the central organs and large nerve-trunks. Sometimes there was a transverse degeneration of a small nerve, with destruction of its axis-cylinders, when in life there had been complete paralysis of the muscle supplied by the nerve; more often individual fibers were affected, while their neighbors remained intact. Such a condition readily explains the many forms of paresis, or incomplete paralysis, so often met with clinically. A fatty degeneration of the voluntary muscles takes place *pari passu* with the lesions in the nerves supplying them. The heart-muscle was always fatty, even though no change were discoverable in the branches of the vagi going to it, and it is assumed that the fatty changes there must have been due either to the altered blood-condition or to the diphtheritic digestion-products acting as direct cardiac poisons. DR. MARTIN has not only confirmed the researches of DEJERINE and of MEYER, but has carried them still further, and it is almost inexplicable to us how so careful an observer could overlook the changes in the lymphatic apparatus and supra-renals; whereas, in these organs, which he describes as normal, decided retrogressive changes have been found (WELCH and FLEXNER, 1891).

The material available for the chemical study of infective endocarditis and of tetanus was very limited, only one case of each having as yet been examined. What has been done, however, would make it appear that in infective endocarditis the products resemble those of anthrax-infection, while in tetanus they more nearly approach those of diphtheria. This is exactly what might have been expected, since in anthrax and infective endocarditis the organisms invade the tissues generally, while in diphtheria and tetanus the organisms remain at the site of inoculation.

We must regard as in the highest degree ingenious the theory as to the rôle played by the spleen in the pathologic process. The tissues of this organ always contained relatively large quantities of the poisons, and the idea is advanced that the spleen is to be looked upon not only as the depository, but also as the chief manufactory for them, the explanation being that the blood leaving the vessels in the spleen-pulp runs out into the sinuses among the cells, whence results a condition of stagnation. The microörganisms in anthrax and in infective endocarditis, and the ferment (absorbed from the local lesion) in diphtheria and tetanus, find there a quiet spot in which to exercise their digestive functions, and convert the proteids first into hetero-albumose, and later into proto-albumose and deutero-albumose,

with the formation of by-products, which last have in some cases an alkaline, in others an acid reaction. In like maner pathologic effusions previously present in the body, or those produced in the course of the disease, afford (it is thought) a suitable medium for the increase of the infective agents themselves, and for the formation of their digestion-products, since in such effusions proteids are held in a slightly alkaline solution, and are removed from the active metabolic processes of the body.

It would seem, therefore, that just as there is a specific primary infective agent, so there are no less specific chemical products for each disease. These products are distinguishable to a certain extent chemically, but to a far greater extent by their physiologic action. Thus, we have a further means of deciding which is the genuine primary infective agent in a given disease, and DR. MARTIN suggests that to the four rules of KOCH there be added a fifth, namely, that "The chemical poisons must be obtained from the tissues in the natural disease, and products with a similar physiological action proved to be formed by the primary infective agent when grown outside the body." In a disease like Asiatic cholera, which is constantly associated with the comma-bacillus, but in which the application of all of the four requirements of KOCH is at present impossible, the fulfilment of this fifth requirement would afford valuable confirmatory evidence in settling the question of etiology.

The fact mentioned in the closing lecture, that in these experiments no antitoxine was produced in the test-tube cultures of any organism, is merely negative, since the supporters of the theory of antitoxine-formation have not claimed that these substances are manufactured save through the direct action of the living blood-serum.

On reading these lectures we cannot help feeling hopeful as to the future of chemical pathology, although we must not be too sanguine, since the best organic chemists of the day regard the theories based upon the supposed nature of the proteid substances as mere conjectural hypotheses.

SEXUAL HYPOCHONDRIASIS.

IN addition to the large number of cases presenting themselves to the physician for the relief of various real disorders of the genito-urinary apparatus, there is another group, including a portion of the first, the constituents of which manifest great perturbation of mind in consequence of some imaginary affection of the generative system. The greatest number of this second class is made up of males at the period of adolescence.

The two most important, if not the sole, factors that lead to the condition under consideration are masturbation and excessive venery. The patients often present the peculiar aspect and behavior of conscious guilt by which the clinician is sometimes at a glance able to divine the diagnosis.

The more common symptoms of which the patients complain are a "loss of ambition," an inability to concentrate the mind, a sense of weakness, a "lightness in the head," disturbed sleep, impaired appetite, and deranged digestion. Sometimes a patient who has familiarized himself with the popular literature on the subject (of which there is a pernicious superabundance) will frankly volunteer the information of his excesses; another will complain of nocturnal or even diurnal seminal emissions or of other derangement in the sexual sphere. Very often morbid fears have been engendered by the vivid descriptions of unscrupulous persons skilful in the art of playing upon the imagination of the credulous. Visions of "lost manhood," of impaired virility, etc., float before the victim's eyes, and in despair at the failure of the nostrums that promised certain relief, he comes to the physician requiring treatment rather for a diseased mind than for a diseased body.

It will depend upon the skill and insight of the physician whether he shall accomplish an apparently marvellous cure or confirm the direst anticipations of the unfortunate patient. Success in treatment will not depend upon the administration of drugs, nor as a rule will argument convince the patient of the falsity of his absurd notions. He must be convinced and cured by the logic of demonstration.

The most important factor in treatment is support of the morale. The nervous system will require close attention. The condition is probably one of reactive depression with irritability. Sedatives are not so much demanded as stimulants. Of course, the mode of life must be regulated. We are convinced that if in these cases in males the rest-cure could be carried out as it is in their female analogues it would yield the same brilliant results.

Regularity is essential as to meals, as to sleep, as to occupation. Thought and association must be purified and made cheerful, healthful, and con-

genial. The patient must be taught to lose his consciousness of self. The cold bath, followed by thorough friction, is the best stimulant. Walking and other out-of-door exercise is a most useful expedient. It need scarcely be said that when organic lesions are present these should, if remediable, be corrected. The medicinal agents that seem to do the most good are arsenic, phosphorus, and strychnine.

SELECTION.

THE VITALINE CRAZE.

To call it consternation is not too strong a term; for although we do not accredit the statement that ten thousand people in Russia have received injections of the stuff "vitaline," there is without doubt a panic on the subject of this injection—this most absurd so-styled "rejuvenator" of old idiots and antidotal preserver of young ones. The story of the "discovery" of this "new remedy." is an old story revived. A wanderer from his native land, this time one Gatchkowsky, an engineer, was sent on his own business into the Trans-Caspian territory, and there, amongst a primitive people, he heard of a new specific. "A Chinese *savant*" revealed to him the particulars of a miraculous compound medicine which, being instilled into the blood of man, would cure everything; it was more than a mere panacea; it was a "rejuvenator," a curer of such fatal diseases as consumption of the lungs without fail. All previous wonders were to be surpassed by it, and the scientific world was once more to be set in commotion by a discovery that should show how natural law in disease could be overthrown in wholesale fashion. For a time—happily short, yet long enough—the new practice made its way, and we are told the regular practitioners of medicine in St. Petersburg were dumfounded by the presence of the "tide of fashion and of favor" that set in. To some invalids, real or supposed, the "vitaline" was administered by injection subcutaneously; to others it was administered internally. Prices for the remedy and its application varied; the rich paid largest fees, but the poor also paid, and some of them also largely. The Czar himself was counselled—by whom is not known, but we should suppose not by any authorized medical adviser—to let his son, the Grand Duke George, undergo the treatment. At last a somewhat less important man, but still one of great importance, was subjected to the remedy, and he, General Gresser, the Prefect of St. Petersburg, and one of the firmest and shrewdest of the guardians of the imperial power, was led to submit himself to the operation, and by the submission sacrificed his life. How, precisely, the sacrifice was brought about we have as yet no satisfactory details. The discoverer of "vitaline" turned round in his defence from the sublime to the ridiculous. The omnipotent remedy at once diminished from its potency into a mere mixture of borax and glycerin—a harmless mixture for good or for evil. If death resulted from the use of it, a dirty syringe used for the injection must have been the true cause; but M. Gatchkowsky, having made a clean breast of his discovery, will practise the art of cure no more; and if he be not, in the panic, charged with political offence and of systematically poisoning the Prefect, he is fortunate. The history of this latest blast of quackery recalls some of olden times which it has been the duty of *The Lancet* to expose and trample out. The case of the notorious St. John Long comes at once to mind. In this case the results which followed the practice of the astute quack were practically the same as those we have just witnessed. What is more, the secret, which Long sold, as was reported, for £3000 to a lady of fashion, turned out, in the end, to be no secret at all. The element of treatment was counter-irritation, and the vaunted composition employed as a liniment was nothing more and nothing less than spirit of turpentine and strong acetic acid. One day the famous nostrum went wrong in its action; it caused, or was accused of causing, a diffuse cellulitis in an unfortunate victim, and then not only was its fate sealed, but in defence the secret was exploded in proof of its harmlessness and its perfect simplicity. Against this specimen of quackery the founder of *The Lancet* fought tooth and nail. He neither hesitated nor paused until the mischievous practice was expelled for good. In this fight, moreover, he had not the whole voice of the profession with him. On the contrary, one man in the profession stood by the delusion to the last, and vainly maintained his advocacy of it after the bubble had burst and its inventor with it. It is our business still to expose, and protest against, these frauds on humanity, exploited as they are at the risk of human suffering and death.—*Lancet.*

REVIEWS.

A MANUAL OF OPERATIVE SURGERY. By FREDERICK TREVES, F.R.C.S. Two volumes, octavo, pp. xvi, 775; xviii, 775. Philadelphia: Lea Bros. & Co., 1892.

JACOBSON, GREIG-SMITH, and TREVES, form a triumvirate of which English surgery may well be proud. Mr. Treves's handsome work has been on our office-table for some time past, and we have consulted it repeatedly, and almost always with great satisfaction. It lacks the admirable and trustworthy indications for treatment, and many of the little practical hints that Jacobson gives. It is not so full in detail, nor yet so limited in scope as Greig-Smith, but it shows on every page the practical and experienced surgeon, whose anatomy is a help, and not a hindrance to his surgery, and who thoroughly understands surgery as a handicraft. It is a book born of experience, and enlarged by wide judicious reading. In fact, it is a great pleasure to note that the three gentlemen whose *Surgeries* have been alluded to, have culled from every part of the surgical field, and have shown a just appreciation of the excellent work done by American surgeons. In this respect this work is a happy contrast to most of the Continental *Surgeries*, which scarcely turn their eyes toward the West.

Mr. Treves's book opens with some excellent general principles. He shows occasionally a sententiousness and an epigrammatic turn of expression that are admirable. In enumerating the qualifications of the "skilled handicraftsman," he says: "A shakiness of the hand may

be some bar to the success of an operation, but he of a shaky mind is hopeless. In the holding of a sharp instrument in connection with the human body, a confusion of the intellect is worse than chorea." Again, he well puts the question of the length of incision as follows: "Surgeons who boast of the smallness of their incisions are proud of what is at most a questionable feat. . . . There can be no possible object in attempting to ligate the common carotid through an incision an inch long. It can be done as a feat; as a surgical procedure, it involves much cutting in the dark, and adds quite unnecessary danger to the operation."

We notice that he gives very little space to the directions for antiseptic surgery, which seems to us a mistake of omission. Mr. Treves calls attention to the object of sutures, that this is not to close the cut in the skin only. "The main wound," as he says, "is represented by two large *raw surfaces* which lie beneath the integument." Hence, the obliteration of the wound-cavity, rather than simply sewing up the rent in the integument, is what is to be aimed at. Again, in drainage we observe that he urges that drainage-tubes should be removed in twenty-four, or at most thirty, hours after the operation. To leave them longer, as a rule, means simply to create a sinus. His practical sense shows itself in his advice to keep the wounded part uncovered by the bed-clothes, since the atmosphere under the bed-clothes "is hot and moist, and frequently foul, as after the use of the bed-pan and escape of flatus. If there be any truth in the principles which underlie antiseptic surgery, no atmosphere could be worse for a wound." It is interesting to note that he gives proper credit to Physick, of Philadelphia, for having introduced animal ligatures in 1814.

As a rule, he shows a judicial mind in weighing the advantages and disadvantages in different operations or different methods of operation. He is not too positive when there is much to be said on two sides, and yet he is not lacking in decision. For instance, in the operations of lumbar and iliac colotomy, he gives the advantages and disadvantages of each operation, and then, without being dogmatic, says that he for one is disposed to agree with Mr. Bryant in his final conclusion in favor of lumbar colotomy. We note, by the way, that he says the more precise terms would be *colostomy* for a permanent, and *colotomy* for a temporary opening. It would seem at the present day desirable that the nomenclature of these operations on the colon should be made to conform with other similar names, such as gastrotomy and gastrostomy, enterotomy, and enterostomy, etc. It is noticeable, also, that he correctly spells a name so often incorrectly written, viz: Littre. This is correctly given without the accented "é," although so good an authority as Billings, in the *National Medical Dictionary*, spells it with the accent.

We are very glad to observe that he takes strong ground in favor of the intra-peritoneal treatment of the stump after hysterectomy. The statistics of this method will, before long, have to be recast, and we have no doubt that, with the modern means that have been introduced, it will very soon show percentages of recoveries surpassing those of the obnoxious extra-peritoneal treatment.

In the section on operations on the rectum, we are rather surprised to see no mention made of either Kraske's operations or the various modifications by Hochenegg, Bardenheuer, or Rose. In the operations on the brain, the cut of Hopkins's rongeur forceps is certainly incorrect, if it is meant to figure the well-known rongeur of the Philadelphia surgeon.

A few matters in which this book could be slightly improved we have pointed out. On the whole, it is one of the best books descriptive of surgical technique that we know, and we can confidently commend it to the profession as one in which the surgeon will almost always find precisely what he desires to know from the operative point of view.

THE PATHOLOGY, DIAGNOSIS, AND TREATMENT OF INTRA-CRANIAL GROWTHS. By PHILIP COOMBS KNAPP, A.M., M.D. (Harvard). Fiske Fund Prize Dissertation, No. XLI. Boston: Press of Rockwell & Churchill, 1891.

THIS volume affords one of the best illustrations and examples of the usefulness, advantages, and value of trustee prizes, and of the necessity that exists for them, or their like and counterpart, to bring out the best exertions of which some men—some of the best workers—are capable. Many such men are all the while the best of workers, or capable of the very best work, and yet fail to give it to the public, not because the work has not been performed; not from lack of opportunity or thoroughfare of communication, but from lack of incentive, from want of occasion or of the subject or of the point of direction.

Would that more such "suggestive" prizes existed among us! That other fields of work than medicine attract most able workers, giving prizes in fame and fortune beyond compare, is true. Nevertheless, medicine sees a constant stream of workers of ability equal to that of these others who would content themselves with the modest fame coming from prizes like this one, and men withal who would willingly await the modest rewards that at the best are likely to accrue to the most successful of the medical profession.

The book itself, as by the necessities accompanying its prizeship, is most admirable, and it contains, with the accompanying references and tables, the essentials requisite for anyone attaining to a full, a thorough knowledge of the question in hand.

The subject of "brain tumors," as in times past it was named, but now, in the era of operative treatment, better spoken of as "brain pathology," as "intra-cranial lesions," has had a most picturesque and most graded process of development. Symptomatologically the advance has been probably more strikingly conspicuous than in any other lesion of the organism.

In literature the subject exhibits even more sharp demarkations. Before 1850 all observations of intra-cranial gross lesions were most diffuse, if not also most vague. From 1850 to 1860 gave us the period of symptomatology. From 1860 to 1870 inaugurated the exactitude of diagnosis by means of the ophthalmoscope; it is Von Graefe to whom we turn with thanks for this development.

To-day it is—from 1870 onward—that we see the symptoms of localization definitely studied — so very definitely that the surgeon's knife may reach the seat of

the growth and perhaps remove the mass. Whether or not the results are to be distinctly and as definitely beneficial the following decade is to be the sole judge.

Of the literature, of the clinical records of brain tumors, Ladame, in his volume, *Symptomatologie und Diagnostik der Hirngeschwülste*, has collected very nearly completely all the records until 1860. The present volume does not cover with as great thoroughness the localization and operative period (1870–1880) as does Ladame's work; perhaps such completeness of compilation is no longer possible, so great has become the mass of clinical records.

The period of the ophthalmoscopic study—which today seems somewhat neglected, even for routine diagnostic work—has not as yet been given. It is much needed to complete the essentials of brain pathology. Should Dr. Knapp wish to prosecute the labor he has so very well begun, the writer of this review is able to put him in possession of a complete collection in manuscript form of all the cases of brain tumors confirmed by a post-mortem examination published during the period from 1860–70.

A TEXT-BOOK OF NURSING. FOR THE USE OF TRAINING-SCHOOLS, FAMILIES, AND PRIVATE STUDENTS. Compiled by CLARA S. WEEKS-SHAW, Graduate of the New York City Hospital Training-school for Nurses. Second edition, revised and enlarged, with illustrations. New York: D. Appleton & Co., 1892.

THIS book first appeared about six years ago, and is the best text-book for the general instruction of nurses that we have. The present revised edition was much needed in order to keep the work in touch with the latest methods of teaching in the medical profession, particularly in antiseptic surgery, and the additional chapter on gynecology fills a want that was much felt in the previous edition. The subject-matter of the book is especially adapted for hospital nursing, and the order of subjects is carefully arranged in twenty-five chapters, beginning with the simplest and those requiring to be taught first.

If anatomy and physiology are taught in connection with the use of this text-book, as the author advises, the repetition of the anatomy of the heart, lungs, and blood-vessels and the description and classification of the bones would hardly seem necessary.

The book deserves to be in the possession of every trained nurse and in every training-school library.

LEHRBUCH DER AUSCULTATION UND PERCUSSION MIT BESONDERER BERÜCKSICHTIGUNG DER BESICHTIGUNG, BETASTUNG UND MESSUNG DER BRUST UND DES UNTERLEIBES ZU DIAGNOSTISCHEN ZWECKEN. Von DR. C. GERHARDT, Professor der Medizin und Geh. Med.-Rath in Berlin. Fünfte, vermehrte und verbesserte Auflage, mit 49 in den Text gedruckten Holzschnitten. Tübingen: Verlag der H. Laupp'schen Buchhandlung, 1890.

IN the preface of this, fifth, edition of his work, Gerhardt says: "Wherefore percuss? We can stain sputa, and by the number of bacilli not alone recognize the existence of phthisis, but also observe its progress. Those who will delight only in the new, yea in the newest, might accept this dictum with satisfaction. He who seeks for a means of complete diagnosis of the many-sided morbid processes, will not omit the exploration methods of Laennec and Skoda, but will learn from extended use more and more to prize these, the most solid foundations of our diagnostic art."

The book is too well and too favorably known to require extended review at the present time. It has been enlarged and enriched with the recent fruits of the author's wide observation. It deals not only with the lungs and heart, but with the whole organism, and it systematically and thoroughly discusses the whole subject of diagnosis by means of sound, giving the physiologic, anatomic, and acoustic groundwork of theory and methods, and the experiential lessons of pathology and clinical observation as to the diagnostic value of the signs thus elicited.

While the author has diligently studied the works of others and gives them due credit, yet the book is stamped throughout with the impress of original thought and independent observation. No one who aims to be thoroughly informed upon the subject can afford not to study it.

LECTURES ON PATHOLOGY, DELIVERED AT THE LONDON HOSPITAL BY THE LATE HENRY GAWEN SUTTON, M.B., F.R.C.P. Edited by MAURICE EDEN PAUL, M.D., and revised by SAMUEL WILKS, M.D., LL.D., F.R.S. Philadelphia: P. Blakiston, Son & Co., 1891.

THE book consists of a number of clinico-pathologic discourses on a great variety of subjects. The title does not indicate the scope of the work as well as did that of a previous book by the author on "Medical Pathology," the greater part of which is here reproduced. Of the fifty-two chapters or lectures we may name those on Anemia, Struma, Smallpox, Dysentery, Gonorrheal Rheumatism, Purpura, Typhoid Fever, Diabetes, Kidney Diseases, and Heart Disease, as indicating the wide scope of the work and the character of subjects discussed. Though we may be disposed to agree with the editor that the book will be more acceptable to Dr. Sutton's former pupils, published as it is as nearly as possible in his own words, we cannot agree that this was the best plan, when other readers are considered. There is something gained, but more lost.

These lectures contain an immense fund of clinical observations, which are of all the more value since, at every step, clinical facts are traced back to their pathologic foundation. It is the living active pathologic teaching of the clinician, rather than that of the anatomist, which is here detailed. It is a matter of great regret that death prevented the revision of the lectures by the author, since many of them were delivered several years since, and doubtless much would have been altered. Particularly would it have been desirable to obtain a definite expression in regard to the relation of bacteria to disease, a question that will scarcely be considered settled by this generation of readers in the conservative manner in which the lecturer regarded it.

The Langenbeck-Haus, intended as the meeting-place of the various medical organizations of Berlin, was opened on June 8, with appropriate ceremonies.

SOCIETY PROCEEDINGS.

THE AMERICAN ASSOCIATION OF ANDROLOGY AND SYPHILOLOGY.

Sixth Annual Meeting, held at Richfield Springs, N. Y., June 21 and 22, 1892.

FIRST DAY—JUNE 21ST.

DR. GEORGE CHISMORE, of San Francisco, read a paper entitled "A New Form of Lithotrite and Aspirator, with Cases Illustrating Their Use." The instrument exhibited consists of a combined crushing and evacuating lithotrite. The male blade is solid, and furnished with Bigelow's lock and screw power, both fitting the same female blade. The male blade has a channel of sufficient size to enable the aspirator to suck pieces of stone into the open jaws, yet leaving metal enough to allow the application of the screw. The wash-bottle consists of a rubber-bag so shaped as to comfortably fit the hand and a glass reservoir. Dr. Chismore then gave the history of ten cases of stone in the bladder operated on by the method described, in addition to fifty others reported to the Association at a previous meeting.

DR. L. BOLTON BANGS, of New York, stated that he was much interested in the form of lithotrite presented. He noticed that the instrument was non-fenestrated, and thought that there might be some danger of catching the wall of the bladder in closing the blades. He considered the wash-bottle shown a most useful one, and extremely simple.

DR. JOHN P. BRYSON, of St. Louis, thought the operator could recognize very quickly whether any of the bladder was caught in the instrument. Besides, the female blade projects for a considerable distance beyond the male blade, and thus acts as a safe-guard. He considers the simplicity of the wash-bottle one of the chief advantages of the instrument. This obviates the constant removal and re-introduction of the instrument, as a result of which the prostatic sinus of the urethra is likely to be bruised. Finally, the instrument renders the operation easier, and places it in the hands of the general surgeon. He has seen supra-pubic cystotomy performed a number of times for stones that could have been removed more easily by the lithotrite.

DR. ARTHUR T. CABOT, of Boston, stated that he seldom uses a lithotrite with a fenestrated blade. He habitually employs Bigelow's instrument, with the solid female blade. In crushing a phosphatic stone with a fenestrated instrument fragments of the stone are likely to be thrust through the female blade, and thus hinder the operation. With the solid blade there is less likelihood of injury to the bladder-wall. Dr. Cabot considers Dr. Chismore's arrangement an excellent one for crushing small fragments of stone.

DR. W. K. OTIS, of New York, described "The Perfected Electro-Urethroscope," which represented a further improvement of the modification of the Leiter instrument for urethral inspection, shown at a previous meeting of the Association. A plain lens has been substituted for the mirror formerly employed, making the instrument less expensive, and shutting off all extraneous light. A small electric lamp is employed for illumination.

DR. E. R. PALMER, of Louisville, Ky., presented "A Contribution to the Physiology of Sexual Impotence." He divided his subject into two sections, namely (1), physiologic impotence of the male, without any regard to sterility, and (2) physiologic impotence of the female, with a like disregard of her procreative powers, avoiding as far as possible all of the many pathologic influences and effects that are recognized by the profession in this connection. He ascribed the impotence of youth largely to the common misconception with which the emission of semen is viewed. The youth is taught that semen is a marvellous product, a thousandfold more precious than even blood itself. This popular doctrine, Dr. Palmer considers an egregious error and a blunder unwarranted either by analogy or by fact. There is no evidence that in the regular use of the testicles, they, like glands and organs generally, are not developed and strengthened, rather than weakened and exhausted. Dr. Palmer contended that within reasonable bounds the regular and frequent use of the sexual organs tends to an increase of their power, while irregular use and continence are in many cases of sexual failure hurtful. The impotence of youth is the impotence of inexperience rather than of incapacity.

Turning from the physiologic impotence of the male youth Dr. Palmer took up the question of sexual failure in otherwise healthy men in the prime of life. Here again is to be met and combated the common explanation, "You are reaping the fruits of self-abuse, or the excesses of your early life; you have, by one or both of these means, worn out your precious powers, and there is no hope for you." Among the ranks of these are many that not only were not addicted to excessive self-abuse in boyhood, and were not libertines in later years, but justly enjoy the reputation of being moral family men. These cases include a not inconsiderable number of passionate men; others that fear a waning of their powers and begin to practise conservative continence; and still others that are absorbed in business cares and worries during the day.

Dr. Palmer held essential the study of the maid, wife, and mother from the standpoint of physiologic impotence. The ideal young woman is almost necessarily impotent. From time immemorial the prerequisites in her moral and social qualifications have been modesty and chastity. That a universal law, acting through ages, calling for unquestioned chastity in maid and mother, should have had its effect in a large proportion of the sex in modifying the sexual organs and desires, is not surprising; that it has not absolutely extirpated feminine sensuality is perhaps more surprising.

In conclusion, Dr. Palmer stated that the primarily ruling causes in sexual impotence and incompatibility to-day are evolutional in nature. The influence of heredity has made man abnormally and perversely sensual, and woman sluggish to a degree little short of absolute incapacity.

DR. BRYSON expressed the belief that the man never lost any of his sexual power by abstinence.

DR. CABOT stated that in regard to men engrossed with business cares there is a general nervous exhaustion, involving also their sexual powers.

DR. SAMUEL ALEXANDER, of New York, read a paper entitled "Congenital Deformity of External Female Genitals, Entire Absence of Urethra; Spontaneous Dorsal

Dislocation of the Hip as the Result of Efforts to Retain Urine; Correction of Deformity and Restoration of Urethra by Plastic Operation; with Some Observations Upon the Technique of Urethral Catheterism." The patient was a girl fifteen years old, born without urethra, the bladder opening just below the pubis by an orifice sufficiently large to admit the little finger. There was incontinence of urine, except when the legs were strongly adducted. At birth there was no other malformation, and until the age of eleven the hips and legs were symmetrical. Four years ago the girl was kicked on the left buttock. Lameness became marked, and the left thigh became strongly adducted and flexed upon the trunk. On March 21, 1892, Dr. Alexander performed a plastic operation to restore the urethra, the ureters having been catheterized a few days previously as a preliminary step. The operation consisted in making a new urethra and in bringing together the upper portion of the labia majora so as to cover the orifice of the new canal. The urethra was twisted upon itself and stitched in place by uniting a portion of its margin with the vaginal septum. Two subsequent sittings were required to satisfactorily complete the operation. As a result the girl has control over her urine at all times, and can retain it for four hours during the day and for eight hours at night. By uniting the upper portion of the nymphæ, the vaginal orifice was not closed, and yet the necessary pressure for the urethra was obtained. In referring to the mechanism of micturition and the cause of the desire to pass water, Dr. Alexander stated that his own observations have led him to adopt the views of Guyon and others of the Necker School, that the contraction of the wall of the bladder is the principal cause.

DR. A. T. CABOT, of Boston, reported a "Case of Sacculated Bladder, with Autopsy." The patient was a man, fifty-seven years old, who first presented himself in November, 1889, suffering with symptoms of stone in the bladder. A few days afterward a stone weighing 116 grains, composed of uric acid and urates, was removed by litholapaxy. The man made a good recovery. In March, 1891, he reported that, although much improved after the first operation, he was not entirely relieved of his symptoms. After a perineal incision the finger could touch a little rough stone high up on the posterior wall. It being impossible to dislodge it, a supra-pubic opening was made, through which the stone could be readily reached. It was about the size of an English walnut, and was contained in a pocket, the neck of which was not larger than a small pencil. The stone was broken by the forceps and removed piecemeal. About April 6th, the urine, which had hitherto been abundant, began to diminish in quantity; it contained a little pus, but no casts were detected. In spite of all efforts the man gradually failed, and died about six weeks afterward. At the autopsy, two pockets of the bladder-wall were found; they were arranged symmetrically, one associated with each ureter, lying a little above and outside of it. One of these pockets had contained the stone previously removed. A number of smaller pockets were also discovered. These pockets, Dr. Cabot said, were probably congenital. The right kidney was found shrunken and in a state of interstitial nephritis, associated with a pyelonephritis, and this condition led to the fatal result.

DR. BANGS reported a case of sacculated bladder, in which the patient (who had suffered for several years with retention of urine), in attempting to relieve himself, suddenly experienced a sense of relief, and at the same time felt a pain in the abdomen. He died before an operation could be undertaken. At the autopsy, the bladder was found hypertrophied, with minute sacculi in the bladder-wall, a number of which contained stone. One of these sacculi had ruptured.

DR. BRYSON referred to the fact that in cases of acquired sacculi the muscular coat of the bladder separates, and the mucous coat sinks in, and a hernia of the bladder-wall results.

DR. ROBERT W. TAYLOR, of New York, read a paper on "The Pigmentary Syphilide." He stated that the primordial pigmentary anomalies due to syphilis consist essentially in a hyper-pigmentation, which may in whole or in part be replaced by a corresponding loss of color or leukodermatous condition. This primordial hyperpigmentation is the essential pigmentary syphilide. All other discolorations are secondary processes, and are not to be classed as pigmentary syphilides. The pigmentary syphilide is seen in three well-marked and quite distinct conditions: 1. As spots or patches of various size; 2. As a diffuse pigmentation of greater or less intensity, which sooner or later becomes the seat of leukodermatous changes in the shape of small spots that gradually increase in size; this is the retiform pigmentary syphilide; 3. In an abnormal distribution of the pigment of the skin, in which, owing to the lack or crowding out of the pigment in places, areas become whiter, while the parts invaded in the abnormal distribution become darker. In this way a dappled appearance is presented. This form has been termed the marmoraceous form, from its resemblance to some forms of marble, in which there is an interblending of light and dark colors. It is not common, and is peculiarly liable, on account of its delicacy of tone and tint, to pass unobserved.

DR. P. A. MORROW stated that he has observed a number of cases of pigmentary syphilide, which is recognized as a comparatively rare affection. Whether the leukoderma is primary or secondary has not been definitely settled. Many still claim that the essential process is an achroma. Dr. Morrow stated that he is inclined to accept the view of Dr. Taylor, namely, that the essential process is a hyperchroma, and that the white spots that form so characteristic and typical a feature are secondary.

DR. J. A. FORDYCE, of New York, stated that he has been on the lookout for a primary pigmentary syphilide for a long time, and he considers it an extremely rare affection. The second variety mentioned by Dr. Taylor is not so uncommon. Some writers claim that the loss and increase of pigment are coincident.

DR. TAYLOR, in closing the discussion, stated that in the cases mentioned in his paper, of which he presented illustrations, he had watched the process from beginning to end. In some cases the whole brown expanse is formed before atrophy takes place; in other cases the atrophy does not occur at all.

DR. JOHN A. FORDYCE, of New York, read a paper on "The Pathology of Syphilitic Nephritis." He related that at the last meeting of the Association he had briefly reported the history of a case of inflammation of the kidney, which had set in acutely in a previously healthy

man, thirty-four years old, four months after the appearance of the initial syphilitic lesion on the finger. The patient passed through a number of uremic accidents, and after the nephritis had existed for about three and one-half years the man died from uremic coma. An autopsy, made twelve hours after death, disclosed a general edema of the subcutaneous tissue. The kidneys were both below the average size; the capsules were somewhat adherent; their surfaces were granular. A small cyst containing about one dram of fluid was found beneath the capsule of the right kidney. On section, the organs were exceedingly firm. A mass of bluish-gray tissue that made up about one-half of the bulk of the right kidney, cut with difficulty, and seemed to be made up entirely of connective tissue. Upon microscopic examination, few normal Malpighian bodies were found. Many of them showed marked thickening of Bowman's capsule, and a homogeneous degeneration (probably hyaline) of the capillary vessels making up the glomerulus. A transverse section of the blood-vessels showed a marked thickening of their walls. The greater portion of the section was made up of a new-growth of connective tissue, the bulk of which was of comparatively recent formation; scattered throughout the section were numerous foci, showing that the interstitial process was in an active stage. While nothing absolutely pathognomonic of syphilis could be claimed, either for the clinical symptoms or the anatomic changes, Dr. Fordyce stated that he felt confident that the exciting cause of the malady was the specific infection, as careful search failed to elicit any other possible factor in its causation. In some cases of early syphilitic nephritis mercury has seemed to exert its specific effect on the kidney-lesions, and to bring about a speedy cure, while in others a fatal termination has taken place during or following the administration of the drug.

DR. R. W. TAYLOR stated that the subject of syphilitic nephritis is still in its infancy. It is known that late in the course of syphilis kidney-affections are occasionally found; then the question arises, whether the affection of the kidney is due to syphilis or to something else.

DR. P. A. MORROW stated that the occurrence of nephritis in the course of syphilis, whether as the result of the syphilitic infection or as an accidental inflammation, is more common than is generally supposed. His experience as to the effect of mercury on such a nephritis has proven very contradictory. In two or three cases the symptoms were apparently aggravated by the use of the drug; in other cases the results were most brilliant.

DR. E. L. KEYES, of New York, stated that he had seen a number of cases in which albuminuria appeared in early syphilis, and his impression is decided that the mercurial treatment is of advantage.

DR. TAYLOR stated that he is in the habit of examining the urine of syphilitic patients. Few cases present signs of kidney-involvement—perhaps from three to five per cent. They are usually amenable to properly directed mercurial treatment.

In closing the discussion DR. FORDYCE stated that the case reported by him would not respond to treatment by mercury given internally, by inunction, etc. In a number of cases on record, an existing nephritis seems to have been aggravated by the use of mercury.

DR. SAMUEL ALEXANDER, of New York, presented a communication entitled "Observations in Regard to the Pathology and Pathological Anatomy of Nodular or Granular Cystitis; Preliminary Paper."

The following conclusions were reached: The occurrence of nodules upon the mucous membrane of the bladder as the result of cystitis is not very uncommon; these nodules are frequently mistaken for tuberculous nodules; they consist of a very vascular lymphatic tissue, arranged in circumscribed foci resembling the follicles of the intestinal mucous membrane, but presenting more diffuse masses of cells; the occurrence of these nodules mparts a peculiar character to the clinical aspect of a cystitis, as manifested by pain, hemorrhage, protracted duration, and a great tendency to relapse; these lymph-nodules are simply the normal lymph-nodules of the bladder, enlarged. Nodular and tubercular cystitis may often coexist, but they are not to be regarded as the results of tuberculous infection.

DR. F. TILDEN BROWN, of New York, read a report of "Unusual Microscopic Bodies Found in the Secretions and Urinary Sediment of a Patient Suffering for Seventeen Years with Urethral Discharge." He related the history of a case in which a peculiar worm was found in the secretions and urinary sediment. The average length of the worm was about one millimeter, being much larger than the ordinary filaria sanguinis hominis; the largest one was about three millimeters in length. The parasite was very difficult to stain. The body was not segmented.

DR. E. L. KEYES, of New York, read a paper on "Relapsing Villous Papilloma of the Bladder." He reported a case in which a villous papilloma as large as a good-sized Mandarin orange, with a pedicle as large as an ordinary lead-pencil, was extracted from the bladder by a supra-pubic operation in November, 1886. In 1891 the symptoms returned, and a relapse of the papillomatous condition was clearly manifest. A second operation was performed in January, 1892. An incision was made above the pubis through the original scar, but the peritoneum was found to be so firmly bound down to the bladder that this avenue of approach was abandoned and a perineal opening made. Upon the site of the original villous growth was found a pedunculated villous tumor, which was removed with a sharp spoon.

DR. BRYSON narrated a case in which he removed a large villous growth from the wall of the bladder; the patient got well, but immediately after the operation he exhibited a good deal of mental disturbance, suffering from insomnia and delusions. These manifestations were ascribed to the use of the anesthetic; they finally subsided, and the man became perfectly well.

DR. KEYES stated that he also had a case in which the removal of a tumor from the bladder was followed by mental aberration.

DR. CABOT stated that in a case of villous growth of the bladder upon which he had operated, the patient, a physician, became very irritable, and acted strangely after the operation; he finally became insane and was committed to an asylum. Whether or not the operation had anything to do with the mental condition, however, was doubtful, as it was stated that the man had previously shown signs of mental weakness.

SECOND DAY—JUNE 22D.

The following officers were elected for the ensuing year: President, Dr. Edward R. Palmer, of Louisville, Ky.; Vice-President, Dr. L. Bolton Bangs, New York; Secretary, Dr. John A. Fordyce, of New York.

It was also decided to change the name of the Association to the American Association of Genito-Urinary Surgeons. The next meeting is to be held at Cumberland Gap, Tenn., in June, 1893.

The discussion on "Prostatectomy" was opened by a communication from DR. WILLIAM T. BELFIELD, of Chicago. From a study of 133 operations upon the enlarged prostate the following conclusions were arrived at: 1. In the majority of prostatics the failure to evacuate the bladder is due not to degeneration of the vesical muscles, but to the mechanical obstruction offered by the prostatic growth. 2. This obstruction is usually of such form as to be overcome by operative measures. 3. These measures should secure restoration of a low-level urethra by removal of the prostatic obstacles, thorough stretching of the prostatic urethra and temporary drainage of the bladder. 4. From the anatomic standpoint, suprapubic cystotomy is, in the abstract, with certain exceptions, preferable to perineal cystotomy. The perineal approach to the prostate, however, should be selected for feeble patients.

DR. JOHN P. BRYSON, of St. Louis, read a paper on "Prostato-Myomectomy by the Supra-pubic Route; with a Report of Results Obtained in Eleven Cases." He detailed the histories of eleven cases in which he had operated upon the prostate. He expressed the view that the more closely the symptoms of prostatic overgrowth resemble those of a foreign body or tumor in the bladder the stronger the reason is for operation.

DR. WILLIAM N. WISHARD, of Indianapolis, read a paper on "Perineal Prostatectomy." He stated that while the prime object of prostatectomy is the removal of mechanical obstructions to urination, an object of scarcely less immediate importance is bladder-rest and drainage. For the purposes of rest and drainage, it is generally conceded that the perineal incision is easily and generally safely performed; the benefit thus obtained is, in some instances, more or less permanent, particularly when stretching the prostatic urethra accompanies perineal incision. In some instances, the length of the prostatic urethra is so greatly increased that an effort to remove obstructing tissue by an opening through the membranous urethra is attended with great and often insurmountable obstacles. McGill states that inability to reach and explore the bladder by this route exists in about thirty per cent. of all cases. Dr. Wishard reported the clinical history of and presented the specimens from two cases of lateral enlargement of the prostate in which the gland was removed through a perineal opening.

DR. KEYES stated that for the profuse hemorrhage sometimes encountered in operations upon the prostate he has devised a gauze tampon, which is drawn into the wound by means of a string passed through the urethra. A string is also attached to a button fastened to the upper surface of the pad or tampon, by which this can be withdrawn through the supra-pubic opening.

DR. BANGS referred to the value of prolonged drainage in cases of operation for enlarged prostate. He inquired as to the death-rate following operations on the gland. He related that he had been able to control severe hemorrhage in the course of operation with an iodoform-gauze tampon pressed against the wound by means of a long hemostatic clamp or sponge-holder, kept in place by the abdominal dressing.

DR. KEYES stated that the death-rate following operations on the prostate is perhaps 25 per cent.; certainly not lower than 16 per cent. Prostatectomy should be considered an emergency-operation that should not be performed if it can possibly be avoided.

DR. F. TILDEN BROWN, of New York, read a paper on "The Pathology of Urinary Fever." He discussed and classified the various theories, both physiologic and pathologic, that have been advanced in connection with the disorder.

DR. JOHN P. BRYSON, of St. Louis, read a paper entitled "Influence of Asepsis and Antisepsis on the Prophylaxis of Urethral as Distinguished from Urinary Fever." He stated that there has been a progressive diminution in the frequency of urethral fever in his practice, notwithstanding an increased number of operations. This diminution in frequency is due to changes in the technique of urethral antisepsis. The plan pursued at present is as follows: 1. When possible, some one of the urinary antiseptics is given by the mouth from twenty-four to forty-eight hours before the operation. 2. All instruments are rendered aseptic by boiling in soda solution. 3. Boracic glycerin alone is used as a lubricant. 4. Before instrumentation the foreskin is retracted and the glans and prepuce are thoroughly washed with the boro-salicylic acid solution of Thiersch. 5. The anterior urethra is also filled with this solution, and is allowed to empty itself several times. 6. The posterior urethra is likewise washed with this solution, either by over-distending the anterior urethra, or, failing in this, by means of an Ultzmann's syringe.

DR. E. L. KEYES, of New York, read a paper entitled "Failure of Diuretin to Avert Urethral Fever." He revoked the conclusion announced a year previously that diuretin appeared to have the power of averting urinary or urethral fever. Despite the free administration of the drug, and the adoption of other precautions, urinary fever has appeared and run its course. Dr. Keyes stated that he knows of no positive, certain means of averting urinary fever in every case, and he relies upon a combination of salol and diuretin, with bichloride irrigation, and warmth and rest in bed.

DR. W. FRANK GLENN, of Nashville, Tenn., read a "Further Report on the Treatment of Gonorrhea." He stated that in connection with a previous report on the treatment of gonorrhea by means of injections of chloride and iodide of zinc, the point was made that as a microscopic examination had not been made in each case, and gonococci demonstrated, many or perhaps none of the cases were instances of specific gonorrhea, and therefore the treatment might not have been as successful as the report indicated. Dr. Glenn has since collected twenty-four cases, in all of which microscopic examination was made and gonococci demonstrated. The average length of time required for a cure was sixteen and $\frac{7}{24}$ days. This average would have been still further reduced but for the fact that two of the patients included in the list neglected themselves and had sexual intercourse during the time of treatment.

CORRESPONDENCE.

"FEBRICIDE."

To the Editor of THE MEDICAL NEWS,

SIR: Referring to my paper against the use by physicians of "patent medicines," read before the Philadelphia County Medical Society (THE MEDICAL NEWS, May 14, 1892, p. 556), the manufacturers of the compound called "Febricide," which I cited as among the nostrums advertised in the *Journal of the American Medical Association*, have called my attention to the fact that they had in former years published the composition of their pills in their advertisements, and have sent me copies of such advertisements. While this does not remove the weighty therapeutic objections that hold against all ready-made combinations, the prescription of which may be highly injurious in a particular case for which the ingredients and proportions have not been specifically adjusted, and while I take no blame to myself for not hunting up advertisements some years old, it does, of course, take the preparation out of the category of secret nostrums, and frees the manufacturers from the stigma attaching to the preparation of articles belonging in this category. As I have no desire to be unjust to anyone, I make this correction.

Yours truly,

S. SOLIS-COHEN, M.D.

219 SOUTH SEVENTEENTH STREET.

THE APOTHECARY'S OATH.

To the Editor of THE MEDICAL NEWS,

SIR: While reading Boas's *History of Medicine* I found the following oath, as taken by the apothecaries of the thirteenth century: "To honor, esteem, and serve the doctors of medicine, ... to speak no evil, ... and to do everything which may contribute to the honor, reputation, embellishment, and majesty of medicine."

Is there a nineteenth-century apothecary that would show his allegiance to and dependence upon the medical profession as did these men of old? Where has progress shown itself along this line? What cares the druggist for the doctor to-day when he has the quack to back him?

The contrast is startling. Look at a drug-store to-day. Where are the drugs? Their place is taken by nostrums, soda-water fountains, and bric-a-brac, and in a back part of the store there is a small sign bearing the legend "Prescriptions Compounded." Is this not a typical example of commercialism *versus* love of mankind?

I could not refrain from sending you this short communication, as it occurred to me soon after reading one of your editorials. Respectfully,

LEWIS S. SOMERS, M.D.

1622 PARK AVENUE.

MEDICAL PRACTICE IN NEW JERSEY.

To the Editor of THE MEDICAL NEWS,

SIR: There seems to be a widespread misapprehension as to the provisions of the new law regulating the practice of medicine in New Jersey. Many of my medical friends in Philadelphia have supposed that they could not come here temporarily to prescribe for their own patients, or even respond to a summons to see a case in this State in consultation, unless regularly registered as practitioners in New Jersey. One physician now here for his health imagined that he would not be permitted to write a prescription for himself. The following article of the Act shows that the restrictions are not quite so ironclad as is generally believed, though less liberal than they should be regarding physicians licensed to practise in other States who might desire to accompany their patients here and remain with them here during a part or all of a season:

"7. And be it enacted, That this Act shall not apply to commissioned surgeons of the United States Army, Navy, or Marine-Hospital Service, *or to regularly licensed physicians or surgeons in actual consultation from other States or Territories, or to regularly licensed physicians or surgeons actually called from other States or Territories to attend cases in this State*, or to any person now entitled to practise medicine in this State."

Very truly yours,

BOARDMAN REED, M.D.

ATLANTIC CITY, N. J.

NEWS ITEMS.

The Sanitary Conditions of Florida.—The following letter and certificate will be of interest to physicians who have patients intending visiting Florida health-resorts:

WASHINGTON, D. C., June 13, 1892.

A. ANDERSON, M.D.,
FRANK FREMONT-SMITH, M.D.,
Physicians to Hotels Ponce de Leon, Alcazar, and Cordova.

GENTLEMEN: In compliance with your request I give the following statement. As the result of a careful investigation of the sanitary condition of the Hotels Ponce de Leon, Alcazar, and Cordova, in St. Augustine, Fla., and of such accounts of the cases of fever which occurred in guests of these hotels during the spring of 1892, as it has thus far been possible to obtain, I am satisfied that no one of these cases of fever was caused by the water-supply, or by the drainage of the buildings, or by anything connected with them or their surroundings. The water-supply has been examined chemically and bacteriologically, the plumbing and house-drainage of each hotel have been carefully scrutinized, the sources of milk-supply, of ice, and of fresh vegetables for the use of the guests of these hotels have been investigated, and no causes of disease have been found in any of them. There have been no cases of typhoid fever among the residents in St. Augustine during the past year, and the general sanitary condition of the town is excellent.

Between December 15, 1891, and April 25, 1892, about twenty-five cases of typhoid fever are reported as having occurred in about 25,000 persons who visited St. Augustine. Fourteen of these cases occurred among visitors while they were in the town, and eleven are said to have occurred from two to three weeks after the patients had left the town. In addition to the above, four cases are reported in hotel servants and one in a nurse. Seven of the cases in visitors while in the town were in the Hotels Ponce de Leon, Alcazar, and Cordova, and six of the cases reported in persons who had

been gone from two to three weeks, were also in guests of these three hotels. In all, therefore, out of about 16,000 guests of these hotels, thirteen are reported as having been affected with typhoid. The investigation into the details of these cases is not yet completed, and I can only say now, that it is probable that two or three of them were not typhoid fever at all; that two of them were ill on the day of their arrival, which illness became well-marked typhoid five days later, and, therefore, was not contracted at St. Augustine; and that of all the cases at the above-mentioned hotels there were among the guests but three which it would seem must have been contracted during their stay in St. Augustine. The four servants affected with typhoid probably had the specific cause introduced into their bodies through contact with a fever case, or cases, or with soiled linen from such case.

Every educated physician will understand from the above figures the extreme improbability that so few cases, scattered over a period of two months and giving a ratio of less than one to a thousand people exposed, could have been due to anything in the structure of the buildings, the general water-supply, or the food, milk, or ice—and the detailed investigation of all these things makes it practically certain that no case of typhoid was due to any of them.

Whether the investigation, now in progress, into the history of the reported cases will indicate the source of the disease is, of course, doubtful, and probably the cases had no common source, but were each contracted at a different time and in a different place; but knowing, as I do, the great interest in these Southern winter health-resorts felt by a large number of Northern invalids, it has seemed best to make this preliminary statement in order to assure them that they can make their plans for going to St. Augustine next winter with perfect confidence; that, while absolute security can be had nowhere, so long as they are there they will probably be less liable to be exposed to the contagion of typhoid fever than they will be if they remain at home.

[Signed] JOHN S. BILLINGS, M.D.,
Surgeon U. S. A.

BOARD OF HEALTH OF ST. JOHN'S COUNTY.

ST. AUGUSTINE, FLA., June 10, 1892.

We, the Board of Health of St. John's County, Florida, do hereby certify that, prior to the month of April, A. D. 1892, there were no deaths reported to this Board resulting from fever of any kind, nor does this Board have any knowledge of the existence of any case of fever in the city of St. Augustine, or St. John's County, prior to the period above mentioned; that during the month of April, A. D. 1892, the following deaths from fever were reported to this Board:

1. Florence Hawley Glover Clark, white female, aged thirty-seven years; residence, Newton, Conn.; died April 3, 1892; cause of death, typho-malarial fever; reported by F. Fremont-Smith, M.D., attending physician.

2. Elizabeth M. Park, white female, aged thirty-five years; residence, Rye, New York; died April 5, 1892; cause of death, typho-malarial fever; reported by F. Fremont-Smith, M.D., attending physician.

3. Joseph N. Knight, white male, aged thirty-four years; residence, Highwood, New Jersey; died April 14, 1892; cause of death, typho-malarial fever; reported by F. Fremont-Smith, M.D., attending physician.

4. Irene L. Davis, white female, aged twenty-six years; residence, Philadelphia, Pa., died April 17, 1892; cause of death, typhoid fever; reported by F. Fremont-Smith, M.D., attending physician.

That all of said deaths occurred in the city of St. Augustine; and that since the 17th day of April, 1892, there has been no report to this Board of death from fever of any kind.

We further certify that the rules of this Board require attending physicians to report deaths to this Board within twenty-four hours after the same occur; and that all deaths are so reported by the physicians of this county in whose practice a death may occur; that at the present time we have no knowledge of the existence of any case of fever in the city of St. Augustine, or the county of St. John's, but the certificate of practising physicians in this city and county is, in our opinion, the best evidence as to whether or not fever of any kind exists here at the present time.

We further certify that the sanitary condition and healthfulness of this city and county are very good and have never been better.

WILLIAM F. SHINE, M.D.,
President St. John's County Board of Health.
T. E. B. KERNAN.
A. J. CORBETT,
Secretary.

Dr. James S. Green, President of the New Jersey State Medical Society, died at Elizabeth on July 2.

Fischel, a distinguished psychiatrist, died at Prague, on June 4, at the age of seventy-nine.

BOOKS AND PAMPHLETS RECEIVED.

Remarks on, and Treatment of, Patients in the Skin Clinic of the Jefferson Medical College Hospital. By J. Abbott Cantrell, M.D. Reprint, 1892.

On Prevalent Therapeutic Inconsistencies in Medical Practice, Illustrated in Current Medical Literature and in Clinical Observations. By N. S. Davis, M.D., LL.D. Reprint, 1892.

Brief Comments on the Pathology of Pneumonia, and the Principles that should Guide in Its Treatment. By N. S. Davis, M.D. Reprint, 1892.

Transactions of the Southern Surgical and Gynecological Association, Fourth Session, November 10, 11, and 12, 1891. Vol. IV. Philadelphia: W. J. Dornan, 1892. Published by the Association.

Ideals of Medical Education. By John S. Billings, M.D., LL.D. Reprint, 1892.

Rare Complications of Typhoid Fever. By Edwin E. Graham, M.D. Reprint, 1892.

Two Clinical Lectures. By Edwin E. Graham, M.D. Reprint, 1892.

Transactions of the Vermont State Medical Society for the Year 1891. Burlington: Published by the Society, 1892.

Gastrostomy. By N. Senn, M.D., Ph.D. Reprint, 1892.

Report of the Board of Health of the City of Seattle for the Year 1891.

Amputation at the Hip-joint by Wyeth's Method, the Patient being Five Months Pregnant. By W. W. Keen, M.D. Reprint, 1892.

Nephrotomy for Calculous Pyelitis. By W. W. Keen, M.D., and David D. Stewart, M.D. Reprint, 1892.

Typhoid Fever in Chicago. By William T. Sedgwick, M.D., and Allen Hazen, M.D. Reprint, 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, JULY 16, 1892. No. 3.

ORIGINAL ARTICLES.

PULMONARY PHTHISIS IN ITS RELATION TO INSANITY AND TO OTHER NEUROSES.[1]

BY THOMAS J. MAYS, M.D

PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC, AND VISITING PHYSICIAN TO THE RUSH HOSPITAL FOR CONSUMPTION, OF PHILADELPHIA.

DURING recent years I have been devoting a good deal of attention to the study of the nervous nature of pulmonary phthisis, and have latterly given expression to my views on this subject in a brochure entitled *Pulmonary Consumption a Nervous Disease.* In this publication I said all that I deemed necessary to say at that time. Continued research in the same field has, however, not only served to confirm my previous opinion, but shows that a more intimate relation exists between pulmonary phthisis and the ordinary neuroses than I then conceived, so that I have for some time been thinking of gathering the evidence of this relationship for further publication. This I would hardly have undertaken so soon if, in the meantime, there had not appeared a book which, on account of its broad generalizations and scientific deductions, stamp it, in my opinion, as one of the most philosophic works that has been issued from the medical press for a long while. This work is Dr. Clouston's book on *The Neuroses of Development,* and to it must be chiefly ascribed, not only the inspiration and incentive of what I shall say to-day, but also much of the matter that makes up the body of this paper.

The clinical association between mental diseases and phthisis has been noticed by many authors, among whom are Van der Kolk, Esquirol, Georget, Burrows, Ellis, McKinnon, Clouston, Boyd, Savage, Norman, and others. The illustrious Laennec, who himself fell a victim to phthisis, says (*Treatise on Mediate Auscultation,* Paris, 1822) that he knew of no more certain cause of this disease than profound or prolonged grief or melancholy. From various sources we learn that phthisis is about three times as prevalent among the insane as among the sane, the mortality among the former being estimated at 20 per cent. By some this high death-rate is attributed to the confinement incidental to asylum-life, but this relation is, after all, more apparent than real, for Boyd (*Journal of Mental Science,* vol. xv, p. 196) shows that out of 147 insane that died of phthisis in the Somerset Asylum, there was a slight increase (4.7 per cent.) in the death-rate of the females that were longest confined; while, on the other hand, there was a slight decrease in the death-rate (3.6 per cent.) of the male inmates that were longest confined.

All observers, so far as I am aware, are agreed in the opinion, too, that the insanity is a precursor of the phthisical affection among the insane. This explains why, as Clouston remarks, insanity is not more frequently found in hospitals for pulmonary consumption.

Not only is phthisis more common among the insane than it is among the general population, but facts show that this disease has a predilection for certain forms of insanity. Thus, it is more likely to occur in the depressed than in the exalted types of insanity. Clouston says that this is especially true of melancholia, when combined with the monomania of suspicion, and that sooner or later nearly all these cases die of pulmonary phthisis. Riva and Sulphide (*London Medical Record,* 1879, p. 479) also state that phthisis is more common in melancholia than in any other form of insanity; but it is also found in general paralysis, or paretic dementia, for Sir J. Crichton Browne (*Brain,* vol. vi, p. 317) states that phthisis existed in 25 per cent. of cases of general paralysis examined after death. My own observation leads me to believe that general paralysis, or paretic dementia, is not infrequently associated with phthisis. This opinion is based on an analysis of the statistics of the Department of the Insane in the Philadelphia Hospital, which was made with the assistance of my friend, Dr. Charles Wirgman.

The Ages of Greatest Prevalence of Pulmonary Phthisis and Insanity.—The most superficial examination of mortality-statistics makes it clear that the human constitution is more vulnerable to phthisis at certain periods of life than at others, although it is true that those who inherit the disease die three years earlier than those who acquire it. This is true, whether the disease affects the lungs, the brain, the bones, or any other portion of the body. Thus, in 17,711 cases of phthisis collected from the Health Reports of the City of Philadelphia and of Rhode Island, I find that the greatest mortality among these prevailed between the ages of twenty and thirty. In regard to tuberculous

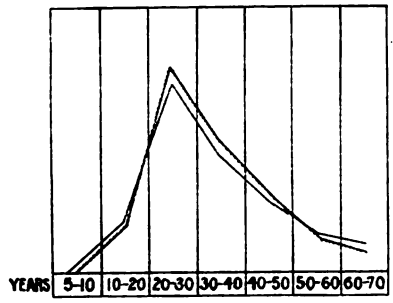
[1] Read before the meeting of the American Neurological Association, New York, June 24, 1892.

meningitis, Dr. James shows (*Pulmonary Phthisis*, p. 4) that the percentage of deaths from this disease is the heaviest in the twelfth month of infancy, and sinks to a minimum after the third year.

Turning now to an inquiry into the morbidity-rate of insanity, we find that this condition not only pursues a similar course in regard to periodicity, but that this periodicity corresponds precisely with that of pulmonary phthisis. Thus, James (*Ibid.*, p. 41) shows by a curve based on 3985 inmates of the Morningdale Lunatic Asylum of Scotland, that the greatest number of lunacy cases develop between the ages of twenty-five and thirty-five. The *Report of the Pennsylvania Hospital for the Insane*, for the year 1888, gives the ages at which insanity first appeared in 9543 patients, and showing the greatest prevalence of insanity to be between twenty and thirty years.

I have constructed a chart, showing the prevalence of phthisis and insanity at various life periods, in the total number of cases reported in the statistics quoted, and from this a comparative view of the course of the two diseases is readily obtained:

FIG. 1.



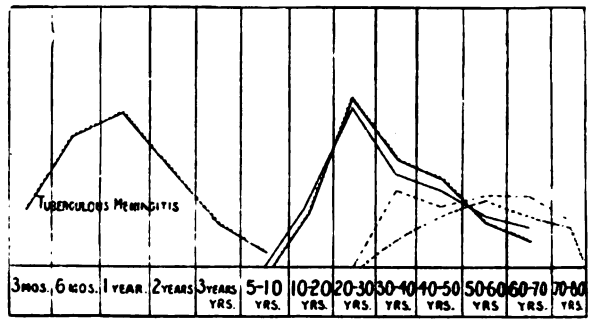
The comparative courses of pulmonary phthisis and insanity at various stages. The dotted line represents the curve of pulmonary phthisis or consumption, and the solid line that of insanity. The cases of pulmonary consumption on which the dotted line is based, numbering 17,711, are derived from the sources indicated. The cases of insanity on which the solid line is based, numbering 9543, are obtained from the *Report of the Pennsylvania Hospital for the Insane*, for 1888.

A most interesting feature is brought out in this connection, if the various ages at which tuberculous meningitis mostly flourishes are contrasted in a graphic manner with those at which pulmonary tuberculosis and insanity are most prevalent, as will appear from the accompanying representation.

From this it will be seen that tuberculous meningitis affects early infancy almost exclusively; that pulmonary consumption and insanity occur at a time when tuberculous meningitis ceases to occur, and pursue a parallel course throughout their continuance. The significance of these curves will receive interpretation when the influence of development in the etiology of disease is considered.

The Influence of Heredity in the Causation of Pulmonary Consumption and Insanity.—That the neurotic tendency breeds pulmonary consumption in the offspring has been recognized since the days of Moreau. Hysteria, chorea, epilepsy, etc., are often intermingled with pulmonary consumption in different generations of the same family. The same is true concerning insanity. Clouston (*Neuroses of Development*, p. 91) tells us that pulmonary consumption and insanity are common in different members of the same family, and a tuberculous heredity may determine insanity, and *vice versâ*.

FIG. 2.



1. ——— Phthisis. 3. - - - - - Chronic Nephritis.
2. ——— Insanity. 4. — — — Carcinoma.

Dr. James, in referring to the subject of heredity, states (*Pulmonary Phthisis*, p. 109) that "If we compare phthisis with diseased conditions which all observations show are quite independent of micro-organisms, as insanity, very close resemblances are found." He, furthermore, says that Thompson has demonstrated the truth of this (*Family Phthisis*, p. 132) by comparing smallpox and syphilis with insanity and phthisis as follows:

	Smallpox.	Syphilis.	Insanity.	Phthisis.
Transmission.	Through mother only.	Through either parent.	Through either parent.	Through either parent.
Time of appearance.	Closely on disease in mother	Closely on disease in parents	Not always closely on disease in parents	Not always closely on disease in parents
Protective or not.	Is protective.	Is protective.	Is not protective, but predisposing.	Is not protective, but predisposing.
Atavism	Unknown.	Unknown.	Rather frequent.	Rather frequent.
Ultimate effects.	Extinction of the disease.	Extinction of the disease.	Extinction of the family.	Extinction of the family.

Commenting on these phenomena, Dr. James declares that "here the resemblance between phthisis and insanity is as complete as is their distinction from smallpox and syphilis, and this comparison indicates that whilst such diseases as smallpox and syphilis must be looked upon as being the results of

some foreign growths implanted in the body, as in a soil, and there passing through the various stages of their life-history, insanity and phthisis may be regarded rather as being the results of some peculiar modification of the body itself, the nature of which we do not understand, but which we vaguely term deficient vitality."

Asthma and Pulmonary Phthisis. — Although asthma is a well-recognized disease, its life-history has not been investigated with the thoroughness that its importance demands. This is particularly true with regard to the tendency through which it produces death. The question then is, Of what do asthmatics die? Do they die of asthma, or of some other disease, and if so, what is the relation between the asthma and the disease of which they die? Asthmatics are supposed to be long-lived, but of this I cannot find any corroborative evidence, either in the experience of others or in that of myself. I do not refer to those exceptional cases that undergo spontaneous cure in the later years of life, but to those in whom the attacks incline to become continuous as life advances. Text-books on the practice of medicine, and even most of the special treatises on this subject give no satisfactory answer, but evidence can be gathered to show that asthma naturally develops into pulmonary consumption. Fuller (*Diseases of the Chest*, 1862) states that, in spite of the belief that asthma and pulmonary consumption are antagonistic, many asthmatic patients die of the latter disease. Williams (*Pulmonary Consumption*, 1887, p. 317), in tracing the origin of 385 cases of pulmonary consumption, shows that seven began with spasmodic asthma. On page 61 of the same work he says that the tendency of asthmatic parents to have tuberculous children is hardly sufficiently recognized. James (*Pulmonary Phthisis*, p. 57) asserts that asthma and whooping-cough are likely to predispose to or terminate in pulmonary phthisis. In my own experience I have seen four cases of asthma that developed into pulmonary consumption, and of these two died. It appears that the danger of asthma lapsing into pulmonary consumption only begins when the attacks of the former follow in such close succession that the irritation produced by the preceding paroxysm has not had time to subside; this is not the case when the attacks recur after long periods of intermission. It seems, therefore, that it is more or less an accumulation of the effects of asthma that develop the phthisical state, the danger of which is averted when sufficient time elapses between the attacks for these morbid effects to pass off.

These facts tend to demonstrate, then, that asthma is closely associated with consumption on the one hand, and I think the instances that follow will make it clear, too, on the other hand, that asthma is closely related to insanity. Clouston (*Neuroses of Development*, p. 65), after defining asthma as a neurosis of the pneumogastric center, says that it often disappears, and is superseded by other nervous diseases, and that its alternation with mania, chorea, and hysteria, is quite common. On looking up the subject of the alternation between asthma and insanity, I have found a number of additional cases to those related by Dr. Clouston in his various writings, and, on account of their great interest, I shall present a short abstract of them.

CASE I.—(Kelp, *Zeitschrift f. Psych.*, xxix, 4.) M., a male, twenty-eight years old, with a family history of insanity on both sides, became asthmatic at twenty-one; he took large doses of morphine and chloral. After some time the asthma disappeared entirely, and was superseded by mania. He presented extreme depression and anxiety, amounting to desperation, accompanied by a delusion that he was being poisoned. After a time the asthma reappeared, and the mental condition gradually improved.

CASE II.—(Dr. Lorent, *Ibid.*) A male adult, who had long suffered from asthma, fell ill of melancholia, when his chest-troubles vanished. Nine months afterward he recovered from the mental affection, and the asthma returned. A year after this the chest-troubles disappeared again, and the melancholia recurred.

CASE III.—(Dr. H. B. Nunemaker; private communication.) A male, fifty-five years old, presented paroxysmal mania for about four weeks, when attacks of spasmodic asthma came on, and displaced the mania. These alternations occurred once in about eighteen months, and took place three times while the patient was under observation.

CASE IV.—(Dr. J. C. Stevens; private communication.) An intemperate male adult was asthmatic for ten years, after which he became insane. He had various delusions, and was subject to paroxysms of abuse and excitement. Occasionally, in the midst of these, an attack of asthma, lasting for a few days, would come on. At these times he was apparently sane. After the asthma disappeared, the mania returned. Finally, the asthma became more or less constant, and the patient remained sane.

CASE V.—(Conolly Norman, *Journal of Mental Science*, vol. xxxi, p. 1.) A female, forty-five years old, suffered from asthma for twenty years. Three months before she came under observation her asthma ceased suddenly, and she became restless, anxious, and melancholic. In two and a half years her asthma returned, but her mental condition did not improve.

CASE VI.—(*Ibid.*) A male, thirty-two years old, had asthma from childhood. The asthma ceased, and he became gloomy, irritable, and was haunted by the thought that he was to kill his mother. A fortnight after admission to hospital he had an attack of asthma. He at once improved. He became cheerful, the asthma recurred frequently, but his mental condition remained undisturbed.

CASE VII.—(*Ibid.*) A male, about twenty years old, had asthma for some time before he became insane. After being confined in an asylum for three years he became perfectly calm, and the asthma returned; from this he suffered for years. The asthma was not observed when he was maniacal.

CASE VIII.—(*Ibid.*) A female, at the age of thirty, became asthmatic, and suffered until she was about forty, when, on account of some financial distress, she became insane—suffering from delusions of suspicion. After about six months' seclusion, her mind cleared up. During this time she had no asthma. Her asthma returned, but so far as known she had no recurrence of insanity.

CASE IX.—(*Ibid.*) A male, thirty years old, had been a sufferer from asthma for many years. Two years before admission to hospital the asthma became less severe, and his friends date his insanity from that time. After being confined for a year or more, his mind gradually cleared up, and the asthma returned in a severe form. The chronic, calm condition of partial dementia was well established before the onset of the asthma, and the mind remained unchanged.

CASE X.—(Clouston, *Neuroses of Development*, p. 122.) A female became asthmatic at thirteen years of age. At thirty-seven she became melancholic, with delusions, and the asthma ceased.

CASE XI.—(*Ibid.*, p. 24.) A boy, one year old, had an attack of infantile paralysis, followed by impairment of growth of the bones and muscles, with weakness and contracture of the right arm, and lameness of the right leg. At puberty he became asthmatic; at nineteen the asthma ceased, and he had a severe attack of melancholia, attended with excitement. This lasted for six months, before and during which time he became thin and anemic. As the melancholia passed off the nutrition improved, and the asthma returned.

Commenting on this case, Dr. Clouston says: "What was the significance of the asthma—a spasmodic explosive condition, probably, of the pneumogastric centers—coming on at puberty, and of the excited melancholia at nineteen? Why were the lower and nutritive centers affected first, during the most active period of growth?—and then the respiratory centers?—and then, in order, the mental centers during the reproductive and higher mental development? And why did the asthma cease when the melancholic attack came on? Why was there a failure in the nutritive power of the whole body, as seen by the loss in weight and want of appetite before the melancholia began? Why did he recover from the melancholia instead of passing into dementia, as so many cases of adolescent insanity do? Why did the asthma return? Did its return save him from dementia?"

Although the phenomenon is less frequent and less pronounced, yet there is evidence to show that it is possible for a similar interchange, or at least a transmutation, to occur between insanity and phthisis as there is between insanity and asthma, as is attested by the following short histories:

CASE I.—(Dr. Ray, *American Journal of Insanity*, 1862, vol. xix, p. 40.) A female presented symptoms of pulmonary disease, and soon after cerebral symptoms. She became so excited that she was sent to an asylum. The excitement abated under treatment, and she went home as rational as ever, but the pulmonary disease returned, and she subsequently died of pulmonary phthisis.

CASE II.—*Schmidt's Jahrbücher*, suppl., 1847, p. 72.) A male, twenty-five years old, made a slow recovery from pneumonia. In the following year all objective signs of the pulmonary disease had disappeared. He then became melancholic, and his head was turned spasmodically to the right. He finally died with dyspnea and dysphagia. On examination his brain was found congested and edematous, and there was a cavity in the apex of the right lung.

CASE III.—(Dr. Edward N. Brush; private communication.) A female, twenty-one years old, became melancholic, and received asylum treatment for nine months. During this time she improved, and became perfectly rational during the last three months of her hospital-residence. There was now observed an evening rise of temperature, and an infiltration at the apices of the lungs. She rapidly sank from consumption, but there was no recurrence of melancholia.

CASE IV.—(*British and Foreign Med.-Chirurg. Review*, lix, 59, p. 117.) Dr. Vosin relates the case of a female who, after suffering from melancholia, with stupor, for four years, was attacked with pulmonary consumption but recovered from her insanity.

These cases give still further proof of the close alliance between insanity and pulmonary phthisis.

Idiocy and Phthisis.—Of all the nervous diseases none is more frequently associated with pulmonary phthisis than idiocy. Indeed, this intimacy is so strongly maintained that one is tempted to be skeptical until the statistics on the subject are fully examined. Thus, Dr. Langdon Down, physician to the Earlswood Asylum for Idiots, says (*Mental Affections of Childhood and Youth*, p. 221), that "the statistics of London show that the deaths from phthisis constitute 115 per 1000 of the general mortality. My notes of the causes of death at Earlswood indicate that phthisis was the actual cause of death in 398 per 1000 of the general mortality. . . . . I have made an analysis of the last hundred of my post-mortem records, and I find that no fewer than 62 per cent. were subjects of tubercular deposit. . . . In several of the cases included in the above record, most careful inquiry failed to discover any family history of tuberculosis. . . . In these cases the tuberculosis appears to have been the sequence of idiocy. . . . Defective innervation, in all probability, led to mal-

nutrition, and predisposed to a tubercular condition. . . . On the other hand, in a large number of cases the progenitors had also manifested a tubercular condition; and in some the tuberculosis of the parents had been, in my opinion, the prime cause of the idiocy of the offspring."

Dr. Isaac N. Kerlin, Superintendent of the Pennsylvania Institution for Feeble-minded Children, in an essay on the Classification and Causation of Idiocy (*Transactions of the Pennsylvania State Medical Society*, 1889, vol. xiii, part i, p. 161), states that "the tables presented with this paper, if prepared by a special advocate to prove that consumption is the main factor in the generation of idiocy, could not be more startling. As they are the result of careful inquiry, without any theory to prove or disprove, I ask for them your respectful judgment in this, as in other details which they present."

In the table to which he refers he gives the histories of 100 families, in each of which there was a case of idiocy. A careful examination of this table shows that 145 members of these families, including parents, sisters, and brothers, and grandparents, were afflicted with pulmonary consumption, 25 with insanity, and 21 with epilepsy. Dr. Down (*op. cit.*, p. 190) contributes the histories of 20 families, each of which was burdened with idiocy, and among the parents, sisters and brothers, grandparents, uncles and aunts, there were 35 who suffered from pulmonary consumption, 10 from insanity, and 3 from epilepsy. The great prevalence of pulmonary consumption among families that contain idiots is, however, no more startling than is its prevalence where hysteria exists. Thus, Professor Grasset (*Brain*, vols. vi and vii) found that among the parents, brothers and sisters, grandparents, and uncles and aunts, of 44 hysterical patients, there were 60 that were phthisical, 5 insane, and 2 epileptic. In order to grasp the enormous mortality from pulmonary phthisis among the members of families burdened with these neuroses, let us compare their death-rate with that which obtains among the members of families believed to be in good health, with no special predisposition to nervous disorders. Thus, if we take in order 1000 applicants for life-insurance (all not insured, for a number of these were rejected) as they are entered on the record-book in a life-insurance office, as I have done, we shall find that among the members of their families only 176 were consumptive, 9 insane, and 4 epileptic. By tabulating these figures in percentages, *i. e.*, by obtaining the proportion between the members of each hundred families represented and the number of sufferers from pulmonary consumption, insanity, and epilepsy, the contrast between the normal and the abnormal will be brought out in a most striking manner.

A comparison of these figures demonstrates that the death-rate from pulmonary tuberculosis is from eight to ten times as great among families of the neurotic class as it is among those of the healthy population. Not only is this an enormous death-rate, but, from further inquiry, it appears that, at least among the idiotic class, pulmonary consumption occurs earlier in life than it does among the general population or among the insane. Thus, it has been demonstrated that the greatest general mortality of consumption takes place between the ages of twenty and thirty; but in Dr. Down's record of 80 idiots that died of phthisis, the highest mortality-period is between ten and twenty years, showing that congenital or infantile disease of the brain and nervous system is capable of causing the greatest mortality-period of pulmonary consumption to appear ten years earlier than it otherwise would.

Among parents, brothers and sisters, grandparents, uncles and aunts of	Phthisis.	Insanity.	Epilepsy.
	Per cent.[1]	Per cent.	Per cent.
1000 life-insurance applicants .	17.6	0.9	0.4
Dr. Kerlin's 100 families that produced idiotic children (aunts and uncles not included) . .	145	25	21
Dr. Down's 20 families that produced idiotic children . . .	175	35	15
Prof. Grasset's 44 families burdened with hysteria	136	11.36	4.50

[1] As already defined.

In concluding this interesting chapter on idiocy, Dr. Down states: "It appears to me that tuberculosis must be accepted as one important cause of idiocy; that it impresses special characters thereon which impart a strong family likeness to the subjects of this class. It is no less clear to me that idiocy of a non-tubercular origin leads to tuberculosis. Whether this arises through the influence of the pneumogastric nerve, mal-assimilation of food, or defective innervation, it cannot but be regarded that the connection between these two maladies is by no means accidental, and that a due appreciation of this relation is necessary to those who would treat effectively congenital mental lesions."

Now, what interpretation can be given to these facts? Only one, so far as I can see, viz., that pulmonary phthisis and insanity belong to the same family-group of diseases. In order to comprehend this statement in its fullest extent, it must be borne in mind that that period in the life of an organ during which it undergoes development, either in structure or in function, marks a crisis in its history, and is the time when it is especially susceptible to disease. This point is particularly insisted on by Dr. Clouston, and it is in perfect accord with physiologic law. He holds that all true cases of epilepsy

arise almost exclusively during the growth and development of the brain. The first period is that of the most rapid brain-growth—from birth to seven years of age—and the second is that of slow brain-growth, but rapid development, the early reproductive period, from thirteen to eighteen years of age. In the great majority of instances chorea occurs between the ages of six and fifteen, the period of life when motion and emotion become coördinated. Megrim is a sensory neurosis that almost never appears before seven, or later than twenty five years of age. According to James, tuberculous meningitis is comparatively infrequent during the first months of life, reaches its maximum about the end of the first year, and then declines rapidly; the maximum, in all probability, corresponds with the time when the trophic and organic functions of the brain are most actively evolved.

The greatest prevalence of insanity—which is between twenty and thirty years—does not correspond with the maximum development of the structure of the brain, for this, as has been stated, takes place before the age of seven, and practically ceases at the age of twenty-five. It does tally, however, with that period in life at which the brain and nervous system undergo the most varied, intense, and complex development in function; for between twenty and thirty a new vista is opened to man. It is the period in which he is compelled to face untried and unsolved problems. He is removed from paternal protection, and left to struggle for his own existence in the battle of life. He becomes burdened with family cares and duties. He is exposed to overwork, business vicissitudes, mental anxiety and perplexities, domestic troubles, grief, disappointment, vicious habits, indulgences, intemperance, syphilis, and many other pernicious influences—influences that, by operating on a brain of either inherited or acquired instability, are known to be among the most prolific causes of insanity.

Pulmonary consumption, on superficial inspection, has apparently nothing, in a pathologic sense, in common with insanity, but on deeper examination the former proves to be a perfect analogue of the latter. Phthisis manifests itself during the developmental, and not, like carcinoma and chronic nephritis, during the degenerative period of life, and causes one-seventh of all of the deaths among the human race. It has been shown that the other diseases that arise during the corresponding period do so by reason of some structural or functional change in the organs affected, as a result of which susceptibility of these organs to disease is increased. Is this true of the lungs, in so far as they stand related to phthisis? Clouston is inclined to the opinion that there is present a trophic disturbance of development of the alveolar epithelium at the age at which phthisis is common, as a result of which a nidus is created for the lodgment and propagation of the tubercle-bacillus. With deference to this high authority, I am constrained to differ with him on this point. It is well known that the alveolar epithelium appears to be of a hybrid character, that it is most unstable, and has a much greater inherent susceptibility to disease during infancy than during any subsequent period; but so far as I am able to discern, there is no histologic or physiologic evidence to show that any development occurs in this structure at the time when pulmonary phthisis predominates; nor is there any proof that the lungs, as a whole, undergo growth in any respect during adult life. There being no such changes detectable in the respiratory organs, or in any of their component tissues, excepting in their nerve-supply, it becomes pertinent to inquire whether pulmonary phthisis is not primarily due to nerve-degeneration, and whether there is proof to substantiate this proposition.

Notwithstanding the great advance in the modern study of the neuroses, the pathologic relationship between the lungs and their nerve-supply has been practically ignored. The lungs are innervated by the largest and most important nerves in the body; yet, strange to say, nearly all of the diseases incidental to these organs are at present attributed to the influence of irritants and excitants introduced from without, and the possibility that the fault may reside in this nerve does not even receive serious consideration. It is not so in disease of other organs. When, for example, an arm or a leg refuses to perform its function, or fails in its nutrition, immediate inquiry is directed to the state of its nerve-supply. In disease of the eye, the condition of the optic nerve is carefully investigated. Inflammation and ulceration of the skin and subjacent tissues are known to be frequently due to disease of, or injury to, the nerves that supply these parts. A multitude of other instances might be given to illustrate the close dependence of the diseases of many organs on lesions of the nervous system.

Experiments, almost without number, demonstrate that section of, or injury to, the pneumogastric nerves of animals, is followed by degeneration of the lungs, as manifested by edema, hyperemia, splenization, hemorrhages, and emphysema—in fact, all of the elements of catarrhal or cheesy pneumonia. Professor Schiff, who has been largely interested in this subject, succeeded in developing both hepatization and tuberculization in the lungs of rabbits by irritating and injuring the pneumogastric nerves. In a series of experiments with rabbits, by wrapping the pneumogastric nerve of one side in cotton-wool saturated with glycerin, replacing it, and stitching the edges of the wound

together, I found that hepatization developed in every case, associated in one instance with yellow tuberculization.

It is true that this condition is known as "Schluck" pneumonia, implying that it is brought about by the entrance of mucus and particles of food into the trachea and bronchi of animals, in consequence of the paralysis of the pharynx and larynx produced by the operation. This view does not, however, seem to be correct, for Arusperger (*Virchow's Archiv*, vol. ix, pp. 197 and 437) has shown that if, after section of the nerves, a tube is inserted in the trachea, and the admission of foreign bodies into the lungs is prevented, the same pulmonary changes occur.

It is not necessary, however, to appeal to experiments on animals alone, in order to demonstrate that lesions of the pneumogastrics are capable of producing lung-disintegration, for there are many instances recorded in which pulmonary consumption in the human subject resulted clearly from disease of these nerves. In my brochure, already referred to, I submit the histories of eighty-one cases of pulmonary consumption associated with demonstrated disease of the vagus. In every instance these nerves were either compressed by aneurisms, enlarged glands, tumors, etc., or interfered with by other causes; and while it is hard to establish the fact that the lung-disease followed the nerve-lesion in every instance, this was undoubtedly the sequence in the vast majority of cases. In discussing the anatomic aspects of two of the cases included in my list, the late Sir William Gull referred to this very subject in the following language: "These cases afford an excellent illustration of the effects which are referable to paralysis of the pulmonary plexus on one side, accumulation of muco-purulent secretion in the paralyzed bronchi, subsequent dilatation of the tubes at their peripheral distribution, concomitant exudation into the air-cells, hepatization, and at length disintegration of tissue on the other. . . . It is one of the evils of a too exclusively humoral pathology (1859) that leads us to overlook the minute anatomical relations of disease, which are in themselves often a key to the sequence of morbid changes. These cases illustrate this proposition, for the possible local effects on the lung of injury to the pneumogastric and pulmonary plexus being recognized, whenever cause for that injury exists we may anticipate its results, and are not wholly dependent upon physical examination, as we are if we limit our pathological view to the mere changes in the lung, without considering how they are produced."

In making comments on one of his cases, to which I also refer in my list, Dr. Wilks, of London, expresses himself in a similar strain when he says: "It has been said that the patient died of phthisis, and the tumors were found accidentally; but, in all probability, the affection of the nerves—that is, of the pneumogastric—was the cause of the pulmonary disease, and, therefore, so far from neuroma being a harmless affection, it was the cause of the girl's death. This idea was suggested by the observation of several other cases of lung disease occurring in connection with disease of these nerves, particularly as witnessed in aneurism of the aorta and cancer of the esophagus. In these diseases death is often brought about by the pulmonary affection, and the pneumogastric nerves are found implicated in the disease, or pressed on by the tumor."

A brief analysis of my recorded cases develops the fact that twenty-nine show, as clearly as anything can be shown, that the phthisical degeneration was the result of a primary local disorganization of the vagi, due to the pressure of aneurisms, tumors, enlarged glands, etc., on these nerves. Here we possess all the requirements and conditions of a perfect experiment, such as we aim to secure in animals; and, unless we assume that pulmonary consumption preceded the local pressure on the vagi—a view that is not confirmed by anything that appears in the histories of the cases — we are bound to accept the proposition that phthisis is a direct sequence of disease of the vagus. In twenty other cases disease of the vagus and pulmonary phthisis were associated with various nervous affections, such as multiple neuritis, tabes dorsalis, bulbar paralysis, etc., and in each of these there is every reason to believe that the pulmonary lesions were secondary to disintegration of the vagi. In eighteen others it is shown that pulmonary consumption was the result of disease of the vagus engendered by the pernicious influence of alcohol and syphilis. In fourteen other cases pulmonary consumption and disease of the vagus were associated with diabetes and epilepsy. In my brochure I also tabulate the histories of sixty cases in which pneumonia, bronchitis, etc., coëxisted with well-ascertained disease of the vagi. Moreover, Drs. Bianchi and Armandi (*Neurolog. Centralblatt*, 1884, p. 452) found the vagi diseased in eleven paralytics that had died of pneumonia; and Dr. Bianchi, in a more recent contribution to this subject (*Neurolog. Centralblatt*, 1890, p. 249), states that in a number of paralytics, that had died of pneumonia, he was able to trace a primary degenerative atrophy of the vagi, and hence he believes that these pneumonias are dependent on degeneration of the vagus. He does not believe that they are induced by the swallowing of particles of food (*Schluck pneumonie*).

Here, then, is a record of 152 cases, in most of which disease of the vagus preceded pulmonary phthisis, or some other form of pulmonary dis-

ease. It may be urged, however, that in view of the general or local disease of the nervous system that coëxisted in these cases, there was reason to anticipate a lesion of the vagus, and the question may arise whether, in the ordinary form of pulmonary phthisis, not associated with any overt disease of the nervous system, a similar condition is found in the vagus. It seems to me, however, that this objection is more apparent than real, because all that the nervous origin of pulmonary phthisis demands is a showing that disease of the vagus is capable of engendering consumption regardless of whether this takes place in connection with well-recognized general nervous disease or not —I say with well-recognized nervous disease, for I am fully convinced that the majority of phthisical patients, if closely observed, would be seen to manifest well-defined symptoms of nervous disease. This opinion is substantiated by the pathologic research of Dr. Jappa (*Neurolog. Centralblatt*, 1888, Bd. vii, p. 425), who examined the peripheral nerves in the bodies of fifteen persons dead of pulmonary phthisis, and found marked degeneration in every case. He states that in these patients there were no nervous symptoms during life, except such as are found in almost all cases of the kind, as undefined muscle-pains, neuralgia, hyperesthesia, etc. Aside from all this, however, the testimony that I have been able to gather on this point demonstrates that the vagi are diseased in those phthisical subjects which are examined after death. Thus, Dr. Lewin (*Beiträge zur Pathologie der N. Vagus*, 1888), in a minute study of the ganglion of the trunk of the vagus in twenty cases of pulmonary tuberculosis, found it degenerated in every instance.

The foregoing facts, figures, and inductions establish, I think, the truth of the proposition that the link that binds pulmonary phthisis to insanity and to other neuroses is disease of the vagi. This connection furnishes a key to the problem why pulmonary phthisis, a developmental disease, should occur in organs that undergo no development at the time of greatest prevalence of the disease. It also shows why asthma should naturally be transformed into pulmonary phthisis; it furnishes the reason why pulmonary phthisis is at least three times as common among the insane as among the sane; and why it is about eight or ten times as prevalent among families burdened with either idiocy or hysteria in some of their offspring, as in those not so burdened. Indeed, this is precisely what the theory predicts and demands. It does even more than this. It explains why idiots die of pulmonary phthisis ten years earlier than healthy persons. This is accounted for by the fact that a depraved brain and nervous system, such as obtain among this class of unfortunates, offer less resistance to disease than a healthy brain and nervous system. On the same score it accounts for the fact that those that inherit pulmonary phthisis die three years earlier than those that acquire it. It offers at least a partial solution to the question why pulmonary phthisis is more prone to show itself in the insane, than is insanity to show itself among the phthisical. Insanity is an affection of the highest nerve-centers, and pulmonary phthisis, if this is granted, is an affection of the respiratory, and hence of the lower centers; pathology teaches that, as a rule, disease of the higher nerve-centers is more prone to implicate the lower centers than is disease of the latter to implicate the upper. The same law holds true of other neuroses. There are, for example, choreic and hysterical insanities; yet comparatively few choreics and hysterics are insane. Locomotor ataxia is associated with paresis, yet few typical ataxics suffer from insanity.

The view advanced furthermore explains why pulmonary phthisis is excited by many of the influences that give rise to insanity. In the differential etiology of pulmonary phthisis and insanity it appears that less depends on the nature and character of the causes than on the susceptibility of the organism on which they operate. For example, it is conceivable from what we know of this subject that the cause that gives rise to pulmonary phthisis in one individual may, by acting on another with an innate tendency to nervous or mental disease, generate asthma, hysteria, or insanity, and possibly pulmonary phthisis subsequently. So, in the same way it interprets why the age that is most productive of pulmonary phthisis should be between twenty and thirty. It is well known that grief, anxiety, disappointment, excessive mental and physical strain, alcoholism, syphilis, and excesses of all kinds are as potent factors in the production of pulmonary phthisis as they are of insanity. When man attains the age of twenty-five he falls a victim to pulmonary phthisis, not because there is a developmental change going on in his lungs, but because new functions have to be developed to assist him in adapting himself to another mode of life. He is confronted by civilization, with its education, knowledge and inventions; its diverse manners and customs; its changeable institutions; its rankling politics; its innumerable arts, sciences, and manufactures; its multiplicity of industries and employments; its burning life-struggles; its accompanying proneness to vices, excesses, and abuses of all sorts—all of which demand of him the exercise of the highest attainable mental qualifications in order to attain its standard and preserve his well-being. He is like an animal on which are imposed new conditions incidental to a succession of geologic changes, and to which it must adjust its organ-

ization in order to maintain its existence. His new environment is not of the same character as that of the animal, but its power is just as real and as great. The brunt of the battle at this time falls principally on his brain and nervous system, for they are the instruments through which he adapts himself to his new relations; and if from any acquired or inherited weakness these prove inadequate, he will fall in the combat.

In view of these premises, it is not to be wondered at that any influence that impairs the efficiency of the nervous system, no matter whether it is a mental or a physical strain, whether syphilis or poisoning from alcohol, mercury, lead, or brass, whether the virus of diphtheria, measles, scarlatina, whooping-cough, influenza, etc, will also be productive of pulmonary tuberculosis; although we must not overlook the fact that the disease is also generated by auto-tuberculous infection, by traumatism, and by the inhalation of stone-dust, and other particles of matter; nor is it surprising that those that are already burdened with a neurotic taint should go down first, and in the largest numbers; nor need we be astonished to learn that the aborigines of North America, Australia, and New Zealand are being decimated and exterminated by pulmonary phthisis in their unequal warfare with modern civilization.

I think that we are justified in concluding, then, that in genesis and in nature, pulmonary phthisis is so closely related to insanity and to the other neuroses that it may be regarded as one of the branches of the family tree to which they belong. In spite of the fact that occasionally there may be alternation or transmutation between these diseases, thus emphasizing their specific alliance to each other, we must bear in mind that there exists a constant and living difference between all of them. An individual does not become phthisical, insane, epileptic, idiotic, or asthmatic as a result of indifferent material and conditions, but because the inherited influences combine with the exciting causes in his environment and predetermine the variety of his affection; and so long as these remain constant, that long will his disease remain typical. No one is more conscious than I am of the imperfections and shortcomings with which the neurotic theory of pulmonary tuberculosis is here presented; and in order to compensate for this deficiency I shall, in closing, quote the pertinent and philosophic remarks of Dr. Clouston on this subject: "The coincidence of the maximum age of tubercular lung infection, and of greatest liability to one of the most important of the acquired insanities, that of adolescence, is a very striking fact, and taken together with the facts as to heredity, seems to show that if tuberculosis cannot itself be called a neurosis, it is in most cases dependent for its existence on a trophic neurosis, or has the closest affinity to it" (p. 92).

THE IMPORTANCE OF SURGICAL TREATMENT FOR LACERATION OF THE CERVIX UTERI.[1]

BY AUGUSTUS P. CLARKE, A.M., M.D.,
OF CAMBRIDGE, MASS.

THE opportunities now afforded the gynecologist in any case for studying the effect of laceration of the cervix uteri leave but little doubt that treatment is a most important subject for consideration. Experience has, however, demonstrated that the local application of the various agents that have from time to time been suggested as being remedial or beneficial is at best but a temporary expedient.

Whenever a laceration occurring at the cervix extends through the internal and external muscular tissue, the mucous coat lining the canal suffers materially from the violence. The *plicæ palmatæ*, which have been described under the term *arbor vitæ*, undergo serious disturbance in their relation to the other tissues with which they are connected. This condition often leads to congestion, thickening, and to induration of the parts involved and to more or less hypertrophy and malnutrition of the higher uterine segments, and to changed relation and to displacement of the lower cervical zone.

When laceration occurs at the cervix, not only are the muscular and the mucous structures injured, but the mucous glands that so freely abound in the uterine canal also become disturbed in their normal functional activity. It is especially in the cervix uteri about the *arbor vitæ* that the mucous follicles, which when in a healthy condition afford only moderate moisture for the maintenance of their function, pour forth an altered, perverted or diseased secretion. The arteries and arterioles entering into these structures often become preternaturally developed or enlarged; there will often be found a greater interlacing or anastomosing of these vascular structures. This condition may lead to more or less local edema, which the venules and lymphatics will fail to overcome. The structure of the uterine nerves, particularly those derived from the hypogastric and sacral plexuses, becomes so deeply involved that not only do the parts in immediate contact with the torn or injured surfaces become the source of much trouble, but all the tissues forming the uterine body may continue so heavily congested and become so thickened, indurated, and globular as to constitute that condition which has so aptly been termed subinvolution of the uterus. The treatment best adapted for the relief of the suffering that occurs in every such

[1] Read in the Section of Obstetrics and Diseases of Women, at the Forty-third Annual Meeting of the American Medical Association, held in Detroit, Mich., June, 1892.

case, according to my experience, is that afforded by surgical measures. The history of the following case illustrates in some measure the importance of such treatment.

Mrs. C., thirty-six years old, descended from good stock, was originally of sound constitution and in good health. Her *embonpoint*, though fair, was not excessive. She was a sextipara. The eldest child was eleven years old, and the youngest three years old. At the time I was first called, December 14, 1891, there had been a most profuse uterine hemorrhage. On my arrival I found that the patient was blanched; her pulse was exceedingly weak and easily compressible. The cardiac sounds were feeble and gave indication that there was some dilatation and perhaps fatty degeneration of the heart. The patient had for the most part been regular in her catamenial flow, though she had suffered at times from unusual loss of blood. There was no evidence in the history of the case to show that the patient was suffering from the effects of abortion or that she was pregnant, or at any time had ever suffered from a miscarriage.

A few days immediately preceding the date of my attendance she had been doing some extra household work and had attempted to lift some heavy articles of furniture. This may have been the exciting cause of the hemorrhage. Vaginal examination revealed that the cervix was patulous, that it was hard and unyielding, and that multiple cervical lacerations had evidently long existed. There was also an old perineal laceration, which might have contributed somewhat to her inconvenience. By tamponading with iodoform-gauze, the hemorrhage was brought under immediate control.

On the next day a thorough vaginal examination showed that there was subinvolution; the depth of the uterine cavity was six and a half inches; there was also cicatricial ectropium of the cervix to an unusual degree. For some days the use of the tampons was continued, though there was no further hemorrhage.

The patient subsequently suffered severely from facial and supra-orbital neuralgia, sometimes on the left side, and at other times on the right. She also suffered from right-sided sciatica, which from time to time became a source of much distress. Full and repeated doses of morphine and of other opiates often afforded marked relief; stimulants were well borne and were frequently required to overcome the narcotic effect of the soporifics. On December 22d, the patient suffered from a severe attack of gastralgia, which yielded only to morphine administered hypodermatically. Under careful regulation of diet and with the judicious use of stimulants the patient from this time forward gradually improved, though she was kept in bed in consequence of the local inconvenience from which she suffered whenever she stood or was in the erect position.

On February 3d, with the assistance of Dr. A. H. Tuttle, the patient was etherized and placed on the table for surgical treatment. All details of the operation were carried out under strict antiseptic precautions. The uterine cavity still measured six and one-half inches. This was first curetted; then the cervix was repaired. Aseptic animal sutures were employed. The mucous tissue of the lacerated perineum was then dissected up as far as the sulcus on each side; coaptation of the torn surfaces of the perineal tissue was effected by the employment of the same kind of aseptic animal suture. The deep sutures were first inserted; each layer of tissue was brought together in its proper order; last of all the edges were approximated by the buried suture, and the parts, united, were sealed with collodion and iodoform. The wound was protected by dressings to the cervical, vaginal, and perineal tissues.

The patient rallied well from the ether, though more than the average quantity had to be used to overcome all rigidity of the genital tract. The bladder was catheterized at regular intervals to prevent the repaired tissues from becoming contaminated by the discharge of the urine. The patient suffered very little from the effects of the operation; there was no elevation of temperature. She experienced some trouble from a return of sciatica, though this occurred on the left instead of on the right side. Neuralgia in the face and in other parts was at intervals complained of. The woman took nourishment and stimulants freely until the evening of the 12th of February, when she began to suffer from dyspnea; the pulse became irregular and the heart's action at intervals was labored. Though the patient was able to continue the use of nourishment and stimulants, she died during the evening of the fourteenth of February.

An autopsy was held twelve hours after death. On opening the chest the heart was found to have undergone more or less fatty degeneration; both ventricles were somewhat dilated; the left contained an ante-mortem clot. The lungs were congested. The liver gave indication that it also was undergoing fatty degeneration; the spleen, however, was normal. The right kidney was congested and was darker than normal; the left showed that marked organic changes had for some time been going on, and that it was approaching a condition of parenchymatous inflammation. At the cervix uteri, where the lacerated tissue had been brought together by the operation for repair, the parts were in a healthy condition; the line of union had nearly healed. The uterine canal also presented a healthy surface; it showed that all the fungoid granulations had been removed by the curetting. The uterus showed that there had taken place a rapid retrograde metamorphosis of tissue, for the canal itself now measured scarcely four inches in depth. Firm union had already taken place at the line of coaptation in the torn perineum. There was no indication of sepsis about the parts. The autopsy, which had been carefully conducted, did not give the slightest indication that there had been any septicemia or that any other morbid process had occurred as the result of the surgical measures undertaken for the patient's relief. The autopsy further showed that there was no pelvic or uterine tumor and nothing to indicate the existence of a carcinomatous growth, as had been suspected by some of her previous medical advisers.

In view of all the facts connected with the case, it seems fair to conclude that the cause of death was the excessive loss of blood that occurred immediately before my first visit. This loss of blood necessitated the horizontal position for a long time and must have hastened the degenerative changes that had before been insidiously developing. It is also fair to infer that had the operation for her relief been instituted before the lapse of so many years, during which she had suffered from hemorrhage and from other untoward symptoms, her life might have been prolonged.

In another case of cervical laceration occurring during labor, the patient suffered much from endocervicitis and from uterine hemorrhage. After coming under my care, she had intended to submit to an operation, but had delayed the matter, owing to a succession of cases of illness that appeared in her family. The patient suffered much from the subinvolution and from the local inconvenience whenever she travelled or was about the house. She had grown stout, but her flesh was soft from a lax habit of the body. Auscultation revealed that, though there was no distinct cardiac murmur, the two sounds were weak and that dilatation and fatty degeneration had begun to take place. Another severe uterine hemorrhage so prostrated her that she had to be confined for some weeks to her bed. She suddenly died from degenerative changes occurring in the cardiac tissue.

In this case there can be no doubt that had surgical measures been adopted for her relief before she had lost so much blood, the fatty degeneration of the heart's structure would not have been accelerated by the recumbent position, which she also from time to time was frequently enforced to assume. In cases in which the disturbance is greatest at the cervix uteri, operation for repair will often yield most favorable results. In such cases it is surprising to see how speedily the thick and indurated tissue at the cervix softens and relaxes under the influence of the stimulus imparted by operative interference. The venules and lymph-vessels, which seemingly had long since lost or suspended their function, almost immediately take on renewed activity.

In a case of cervical laceration to which I was recently called, there was but little that could be expected to be achieved by the adoption of surgical measures on account of the unusual hypertrophy of the tissues that had taken place, and also on account of the exhausted condition of the patient. The operation was, however, undertaken. I was happily surprised to find that I had succeeded in effecting much toward the reduction of the induration and toward bringing about restoration of the cervix.

In cases of cervical laceration before the structures become indurated or cicatrized, the ectropium or eversion of the tissues of the os uteri may be the chief indication for which surgical treatment is required. Eversion, when present to any great extent, almost always gives rise to much local suffering, especially when the patient assumes the erect position. Such a condition of the cervix is sometimes the cause of sterility; it often interrupts the marital relation.

In a case to which I was called in consultation some two and a half years ago, the tissues of the os uteri so projected forward as to give the impression to the medical attendant, when the examination was made without the help of the speculum, that a fetus at the period of four months or more had engaged in the cervical canal. This patient had been the mother of four children, during the birth of the last of which laceration of the cervix occurred. As a consequence of this injury she had had repeated and troublesome hemorrhages—apparently unassociated with the catamenial flow. This case had, under temporizing treatment, dragged on for upwards of three years. A resort to trachelorrhaphy was followed by marked amelioration.

Emmet, as is well known, long ago expressed his belief that nearly all cases of uterine epithelioma or cauliflower growth have their exciting cause or origin in laceration of the cervix uteri. According to Emmet the carcinomatous development arises from perverted nutrition, in Nature's attempt to repair the injury.

Professor Graily Hewitt, of London, and other eminent authors have expressed the opinion that injury to the cervix by labor is the predisposing cause of uterine carcinoma. In a case that has recently come under my care the history showed that there had been a cervical laceration dating back some ten years. The patient was forty-six years old, and a multipara. There had been considerable induration and eversion. From the history it could not be learned that carcinoma had ever appeared in her family. The patient for several months previously to the manifestation of carcinoma in the cervix uteri had lived in a family in which there were two cases of carcinoma.

In another case to which I was called, the patient was twenty-nine years old and a primipara. There was no evidence of malignant disease in either branch of her family. One year previously she had experienced the initial symptoms of carcinoma of the cervix. She had devoted much time to the care of a friend who was suffering from carcinoma of the breast. She had incurred a cervical laceration during labor five years previously. She experienced considerable inconvenience from the effects of the laceration, and had from time to time received

local treatment; no operation for repair of the cervix was, however, ever undertaken.

In many cases of laceration of the cervix the induration that takes place is limited to an exceedingly small section; the eversion may occasion but little disturbance. In such cases there may have been no arrest of the action of the absorbents that are engaged in the removal of the provisional material incident to pregnancy. In some cases of this class, it would seem that the occurence of laceration increases the activity of the absorbents, or at least helps to expose them to the agency of the *materies morbi* or to that of the disease-germs that at any time may gain admission into the vaginal introitus. As more evidence has of late been adduced to show that carcinoma in its various manifestations is a contagious[1] affection, a much stronger plea than heretofore can now be made in support of the advantages to be gained by resort to the operation for repair of the cervix in which laceration has occurred, though it be of a minor grade.

DISARTICULATION AT THE HIP-JOINT—A NEW METHOD OF CONTROLLING HEMORRHAGE DURING THE OPERATION.

BY H. W. BOONE, M.D.,
SURGEON TO ST. LUKE'S HOSPITAL AND LECTURER ON SURGERY IN THE MEDICAL DEPARTMENT OF ST. JOHN'S COLLEGE, SHANGHAI, CHINA.

MR. TREVES, in his manual of operative surgery, calls "this amputation the most serious the surgeon can be called upon to perform." Speaking of methods of controlling the hemorrhage, he prefers the anterior racket incision, in which no tourniquet is applied. He says of the external racket method, that the elastic tourniquet can be applied, and he gives many good reasons for commending it as an excellent operation. Up to the present time the two best methods for applying the elastic tourniquet to the limb have been those of Mr. Jordon Lloyd[2] and the method of Dr. Wyeth.[3] A recent article by Dr. Keen,[4] of Philadalphia, gives an interesting description of the use of Wyeth's method, together with details of the form of operation used by Dr. Keen.

In the method of Mr. Lloyd, "the ends of the bandage thus tightened must be held by the hand of an assistant." One needs a skilled assistant. He may be in the way, and his hand must not slip, as it is liable to do while the limb is freely moved about during the operation. Dr. Wyeth's method is certain, and the control of the hemorrhage is absolute. The drawbacks are the need of two stout steel pins, twelve inches long and one-fourth of an inch in diameter at the head, and the injury to the soft parts of the limb in thus transfixing it in two places.

The plan of securing the elastic tourniquet that I propose is as follows: Get a new pair of suspenders of non-elastic webbing, such as men wear to keep up their trousers. Surround the sound thigh at the groin with a soft handkerchief, folded to make a band, and which has been made antispetic. Put the knot on the outer side of the limb, pass two stout tapes, eighteen inches long, under this band in front, and also one behind the thigh. Fasten these loops of tape through the two button-holes in the front straps of the suspenders and the one button-hole at the back of the suspenders, on the sound side of the body. Lay the patient on his sound side; then put two tapes, about five inches apart, along the trunk and the back of the thigh that is to be amputated; keep them in place by the hands of an assistant, or by adhesive straps across them; lay two tapes, five inches apart, along the front of the thigh and abdomen, and keep them in position. Pure elastic tubing, half an inch in diameter, is then wound five or six times around the thigh, keeping it well up at the very highest point at which it can be applied; then secure by tying it. Take the two posterior loops of tape in the hand and tie one tape securely in each one of the posterior suspender-straps. Take the two anterior loops of tape in the hand; fasten them through the two front button-holes in the front straps of the suspenders, and then let the assistant tighten up the suspenders by drawing the straps through the buckles, while the surgeon is elevating the elastic tube from the body and drawing it further upward. In this way the surgeon can adjust the elastic tube to suit himself. It is firmly held; cannot slip, and it needs no assistant to look after it. He can slack up the tube and cut the tapes whenever he wishes to do so. In this way the punctures through the thigh are avoided. At the field hospital, after the battle, or in the country, where surgical appliances are not to be had, the surgeon who can get one pair of non-elastic suspenders and a rubber tube, or even a strong pair of elastic braces to wind around the thigh, is provided with all the apparatus needed for controlling hemorrhage during the operation.

I hope that practical surgeons will give this method a trial by applying the apparatus to some strong, healthy man. After they have applied it once or twice they will be able to judge whether or not this very simple plan would prove to be of real service in controlling hemorrhage during a disarticulation at the hip-joint.

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[1] Guelliot and Arnaudet: L'Union Médicale, 1891.
[2] Lancet, Vol. i, 1883, p. 897.
[3] International Journal Surgery, July, 1890.
[4] THE MEDICAL NEWS, March 26, 1892.

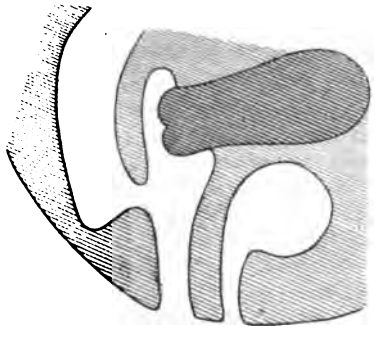
CLINICAL MEMORANDA.

REPORT OF A CASE OF ATRESIA ANI-VAGINALIS; SUCCESSFUL OPERATION.

BY THEOPHILUS PARVIN, M.D.,
PROFESSOR OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN IN JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

INSTANCES in which, according to the common expression, the rectum opens into the vagina, though infrequent, are not absolutely rare. Schurigius, for example, in his work, *Muliebra Historico-Medica*, Dresden and Leipzig, 1729, adduces several cases, derived chiefly from writers in the seventeenth century; and Garrigues (*American System of Gynecology*) states that Pooley has compiled thirty-eight cases. Auvard, from whose work, *Traité Pratique de Gynécologie*, 1892, the accompanying illustration, slightly altered, has been taken, designates the condition recto vaginal fusion. This name

FIG. 1.



suggests a process of mal-development rather than the condition that really is present—an arrest of development.

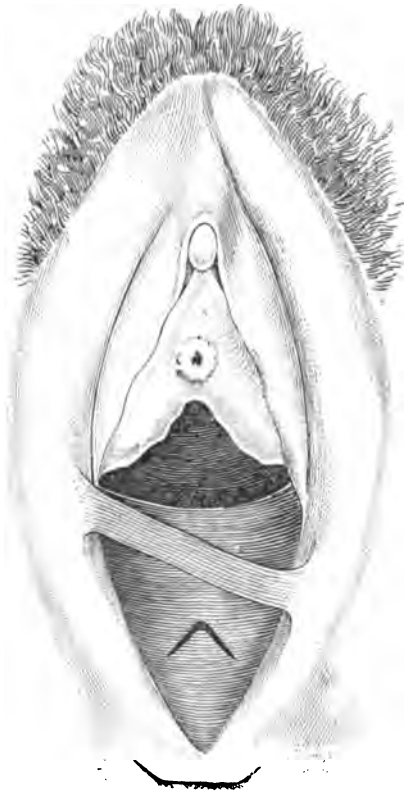
According to Kölliker, about the middle of the third month of intra-uterine life the orifice of the cloaca is divided into two—anal and uro-genital—though embryologists are not clear as to how the separation is effected. De Sinéty speaks of a proliferation of connective tissue situated between the intestine and the canals of Müller, which then open into the posterior wall of the allantoid; there is found a projection, which, little by little, elongates, advancing more and more to the exterior, in order to form the recto-vaginal wall, which isolates the rectum from the uro-genital apparatus, and its inferior part makes the perineum. The perineum is formed in the fourth month. Manifestly, therefore, the absence of the perineum—or, in other words, the opening of the rectum into the genito-urinary sinus—is not a malformation, but an arrest of development occurring in the latter part of the third or in the beginning of the fourth month.

The patient whose case is here narrated was referred to me by my friend, Dr. John H. Brinton. She had twice been operated upon—once in infancy and again at puberty—but unsuccessfully. What these operations were her friends could not inform me, and the surgeon who performed them has been dead some years. Probably the only vestige of an operation is to be found in a band stretching obliquely over the vulvar opening, and which is represented in one of the illustrations. The description of the condition presented by the patient has been written by Dr. Eads, resident physician in Jefferson Medical College Hospital, under whose care she was, and to whose assistance in the operation and assiduous and intelligent subsequent attention the success is largely to be attributed.

Miss E. L., twenty years old, a dressmaker, was admitted into Jefferson Hospital, November 6, 1891. The patient was very anemic. Menstruation began when she was thirteen years old; it was scanty and irregular. She had no evacuation from the bowels without a previous enema, and the movement was attended with pain. Purgatives acted unsatisfactorily, causing only slight watery discharges.

Upon local examination, the genital fissure was found to be abnormally long; the external genitals were apparently normal, except for a narrow band extending from

FIG. 2.



one labium majus to the other, about an inch and a half from the clitoris. There was no external opening of the anus. Within the posterior commissure, and nearly an inch above, there was an opening in the posterior vaginal wall in what appeared to be a capacious cul-de-sac; this opening was guarded by a triangular flap, the attached portion of which was broad, but the free extremity narrow and pointed. Upon introducing the finger into the orifice, a contracting sphincter was to be felt. Upon passing a probe into the opening, it penetrated above some eight inches, apparently coming in contact with the invaginated sigmoid flexure; but directed downward and pressed firmly, its bulb could be felt through the tissues externally.

The accompanying illustration shows fairly the appearance presented by the vulva and the lower portion of the vagina; it shows the band that has been mentioned and the unnaturally located anal opening. In addition, there is presented the first step in the operation performed for the relief of the abnormality.

In considering a suitable method of operating, it seemed to me that the great length of the genital fissure might be lessened by having a flap pushed forward at its posterior boundary. Acting upon this view, a transverse cut and two oblique cuts were made with scissors, these incisions being similar to, though shorter than, those made in Tait's operation for partial rupture of the perineum. It would have been better had the two posterior oblique cuts also have been made just as is done

FIG. 3.

by Tait s method. The transverse incision was carried upward posteriorly to the inferior portion of the rectum, and then completely around its vaginal opening. The next step was by means of tenacula to draw the anus down externally to the middle of the transverse cut; a continuous catgut suture united the anus with the skin, and, in addition, several interrupted silkworm-gut sutures were introduced. (The latter, but not the former, are shown in the illustration.) A continuous catgut suture was used to close the gap left in the vagina. The first operation was almost, but not quite, a complete success, a part of the anterior margin of the anus failing to adhere—a failure that was readily remedied by a re-denudation and suture. In a few weeks, the patient returned home, well. In March she revisited the hospital to tell me how well she was and to testify her gratitude for what had been done for her. She has gained twenty pounds in weight; menstruation is regular; the bowels move twice a day; the evacuation is painless, and there is complete control over gas and feces.

In conclusion, I believe that if the operation had been completely like that of Tait for perineal rupture, so far as incisions were concerned, the result in regard to size of perineum would have been better (the distance between anal and vulval openings is only about half an inch in this patient), for, with the resulting quadrangular surface, skin and subcutaneous tissues could readily have been drawn from the lateral boundaries of the quadrangle, so that the anterior flap would have been pushed further forward. So impressed am I with this theoretic opinion that, were a similar case to be presented me, I would employ the method outlined.

INJURIES TO THE HEAD.

BY WILLIAM M. LEWIS, M.D.,
OF LOS ANGELES, CAL.

WHEN I was a boy, ten years of age, I fell from a horse, fracturing my frontal bone in two places. The four-inch cut in the forehead was sutured—that was all of the treatment. Recovery was prompt.

Shortly after that I saw a soldier strike a comrade with his fist a blow immediately above the left ear, and death resulted in an hour. The treatment was venesection.

These two incidents, more especially the first, made an indelible impression on my youthful mind, and throughout my student and professional life I have tried to learn upon what the element of danger depends in cases of head-injuries. Bryant states that "all injuries to the head should be treated with extreme care, and *always regarded as serious*." (Italics mine.)

I have read somewhere that no injury to the head is so slight but that there is danger, and none so grave but that there is hope. No rule or law can be laid down to govern these cases. Every case must be a law unto itself.

CASE I.—In 1885, J. D. was struck on the frontal bone, at the edge of the hair, by a companion, with a foot-adze (a cooper's tool). The result was a depressed fracture, nearly four inches long, and hemorrhage sufficient to occasion syncope. Two hours afterward, the depressed bone was lifted to its place, when arterial hemorrhage again threatened the life of the patient. Other means proving useless, the bone was allowed to press upon the brain and the bleeding ceased. The patient had not lost consciousness, except when he fainted. He was advised of his danger and put upon ergot and cold compresses. This treatment may be criticized as bad surgery, but the patient made an uninterrupted recovery, and is alive and well to-day, a deep depression being the only result.

CASE II.—In an altercation with his brother, T. M. was struck on the head with a small scaly rock, receiving a wound that bled only a few drops. No impression was made on the general system, and the patient paid no attention to his hurt. Twenty days afterward, inflammation of the diploë set in, and was rapidly followed by meningeal inflammation and death.

CASE III.—While engaged in compressing a radial artery of a small boy, severed in opening a fruit-can,

my attention was called to a street fight in front of my office; as I looked, a strong, muscular teamster plunged a pocket-knife into his adversary's brain, at a point near the junction of the sagittal and coronal sutures (bregma). The blade sank to the hilt, and in extracting it the assailant used all his power and wrenched it from side to side three times. When the three-and-a-quarter inch blade was finally withdrawn, arterial blood, in a solid column, flew high in air, and the victim sank to the ground unconscious. When I reached his side he was exsanguine and pulseless, and bleeding had ceased—in less than five minutes. A wound of the arm was sutured and the patient was taken to a hotel, stripped of his blood-soaked clothing, his head enveloped in iced cloths, and ergotine, gr. ij, administered hypodermatically. In six hours paralysis of the opposite half of the body was complete; the pulse reappeared at the wrist and signs of reaction set in. In eighteen hours the patient opened his eyes and asked for a drink of whiskey. During the three weeks of illness that followed, the paralysis gradually subsided and recovery became complete. Now, two years and a half after the reception of the injury, the patient is in perfect health, and smokes a strong pipe almost constantly. The amount of brain-tissue that was disorganized must have been considerable, and the loss of blood was measured by the capacity of the heart to pump it out. The man belonged to that innumerable throng around which no surgeon can place antiseptic precautions, while the opportunity for infection was constant; still he escaped.

CASE IV.—In play, a schoolboy, ten years old, was struck upon the head by a small falling rock which his companion had tossed into the air. There was no abrasion and very slight contusion. On the third day afterward, severe headache set in and continued. On the seventh day the usual symptoms of meningeal inflammation developed, and death closed the scene in less than three weeks from the day of injury. A reviewer might say that the traumatism and the fatal illness were merely coincident, but the impartial judgment of the physicians concerned in the case attributed death to the head-injury. Unfortunately no post-mortem examination was permitted.

CASE V.—J. M., sixty years old, while asleep in bed, was struck by an insane person two blows with an axe. The ball or blunt end of the axe was used, and the first blow landed on the side of the head, half an inch above the left ear. The sleeping victim turned partly over and received the second blow transversely across the forehead, an inch above the eyebrow. The entire arch of one eye was fractured loose and hung down nearly an inch lower than that of the other side. At least a tablespoonful of brain-matter had oozed from the gaping wounds and ran down on the man's face, and blood was flowing freely from both ears. Loose fragments of bone were removed, and the battered head was shaped up, and with a few stitches and strips of adhesive plaster the man was made moderately presentable. During the toilet, brain-matter was washed and wiped away freely. Deep stupor, with very shallow and slow respiration and slow pulse, continued for four days. The patient then showed slight signs of rallying, and after two months of illness made a good recovery—only a slight degree of mental impairment remaining four years afterward.

CASE VI.—A. C., thirty-five years old, was thrown from a buggy by a runaway horse. In addition to a cut on one foot and dislocation of two fingers, he received a wound about one inch long, some two inches above the inion, in the middle line. Upon washing the wound a stellate fracture was observed. No symptoms of internal injury were present; the patient was conscious and conversed freely. Convalescence seemed well established, and for three or four weeks not a symptom occurred indicative of any deep-seated injury to the head. At the end of that time mental aberration and motor and amnesic aphasia supervened. The usual symptoms of general diffuse inflammation of the meninges rapidly followed in succession. In consultation, it was decided not to trephine at the seat of injury, as the symptoms pointed to injury by *contre-coup* in the frontal lobes. The post-mortem examination disclosed a large abscess at the seat of injury and another on the upper surface of the right frontal lobe. Trephining and draining the posterior abscess would not have saved the patient.

CASE VII.—While riding along the road, M. W. was fired upon and received a bullet in the left side of his head, at the anterior inferior angle of the parietal bone. The post-mortem examination, made thirty-six hours afterward, showed that the bullet had been deflected downward, had passed through the brain, and had lodged against the temporal bone on the opposite side of the head. Notwithstanding this injury, the man dismounted, climbed over a fence, and pursued his assassin twenty or thirty yards, in fact until he received another bullet, this time in the abdomen. He then went back to his horse and rode two miles. To the physicians who attended him he repeatedly said that the wound in his head was insignificant. He remained rational as long as he lived, and never manifested the slightest symptom of brain-injury. The cause of the death was hemorrhage into the abdominal cavity from a severed small artery.

In this series of cases one feature is most noticeable, that is, that when hemorrhage was free the patients recovered, even though there was loss of brain-substance. Should all injuries to the head be regarded as serious? Should a physician treat every case of head-traumatism as serious?

A few weeks ago I was called to see a man who had received a severe blow on top of the head with a blunt instrument. When I reached his side he was vomiting, and plainly in a state of shock. I regarded the case as serious, and advised him to remain in bed five or six days. On the following day he went about his business. Of course, such a case proves nothing, but it indicates that the physician ought not to be precipitate in action.

I knew a surgeon who had made extensive preparations to do the operation of trephining for depressed fracture. With grips and boxes and bottles and assistants, he approached the house of the patient only to find that the latter had gone out of doors.

INTOLERANCE TO POTASSIUM IODIDE.

BY J. T. BRINGIER, M.D.,
OF BURNSIDE, LA.

F. G., thirty-eight years old, a mulatto, was ordered five grains of potassium iodide, three times daily. After

taking the second dose he was suddenly seized with intense pain in the forehead, eyes, and teeth, with hypersensitiveness in the area of distribution of the trifacial nerve.

There were also marked edema of the eyelids, injection of the conjunctivæ, lachrymation, and profuse nasal discharge.

All the symptoms abated within three days upon suspending treatment. When medication was resumed one week later, only half of the original dose being exhibited, the symptoms recurred, but in a modified form.

THERAPEUTIC NOTES.

The Management of Gout.—In a clinical lecture at the Vienna General Hospital, NOTHNAGEL (*Internationale klin. Rundschau*, 1892, No. 10) stated that the diet of the gouty patient may contain green vegetables and fresh fruits. Sugars and starches are to be avoided. A little meat may be allowed; white meats are preferable to red meats. Active physical exercise is to be encouraged; the action of the skin is to be stimulated by baths and friction. In the treatment of the diathesis alkalies and alkaline waters occupy a prominent place. The lithium salts, well diluted, are useful, permitting, as they do, the formation of soluble combinations of uric acid. Recently, with the same end in view, piperazin has been strongly recommended. In the attack, applications of cold or heat, blood-letting, fomentations of narcotic substances, ointments of opium, have in the past been employed; but these are now usually abstained from, as experience has taught that by energetic treatment the condition may be transformed into atonic gout; at most, inunctions with an ointment of cocaine are made. During the attack, the administration of an acid, like phosphoric acid, has been recommended; and in the intervals between attacks, sodium salicylate. Other remedies failing, colchicum may be resorted to in vigorous doses, conjoined with a narcotic, if warranted by the intensity of the pain.—*Centralbl. für die gesammte Therapie*, 1892, x, 5, p. 271.

A Modification of the Pasteur Method of Treating Hydrophobia.—MURRI (*Lancet*, 1892, No. 3588, p. 1231) reports the case of a healthy, robust man, twenty-two years old, who, after having been bitten by a rabid dog, placed himself under treatment by the Pasteur method of injecting subcutaneously emulsions of the medulla of inoculated animals. On the twenty-fourth day, however, symptoms of hydrophobia appeared. The subcutaneous injections were continued in doses of increasing strength, but without avail. It was, therefore, decided to have recourse to intra-venous injections. For several days, the condition of the patient remained unchanged. Then improvement slowly set in and continued until permanent recovery was practically assured.

Treatment of Carcinoma Uteri.—At a meeting of the Royal Society of Physicians of Budapesth, SCHULZ (*Wiener medizin. Presse*, No. 15, p. 598) reported satisfactory results from the treatment of carcinoma of the uterus by means of interstitial injections of absolute alcohol. From fifteen to thirty minims are injected daily. The patient need not be kept in bed. When the injection is attended with much pain, as when made in the cervix, a narcotic may be necessary. After the injection, the vagina is packed with iodoform-gauze, which is permitted to remain until the following injection. As a result of the treatment, the growth undergoes diminution in size, and pain, hemorrhage, and secretion are lessened. When the tissue has become so hard that it is difficult to introduce the needle, the treatment may be intermitted for the time being. Twelve cases have been treated in the manner outlined. Three have been relatively cured. The others were uniformly improved. The method of treatment is especially applicable when a radical operation is contra-indicated.

Lactic Acid as a Prophylactic in Gout.—BERENGER-FERAUD (*Journal de Médecine de Paris*, 1892, No. 15, p. 181) recommends the employment of lactic acid to prevent the gouty attack. To six hundred grains of the acid is added sufficient water to make a solution of twenty teaspoonfuls; each teaspoonful will thus contain thirty grains. Every morning a teaspoonful of the solution is added to two or three glasses of sweetened water and drunk in the course of the day. At the end of twenty days the medication is suspended for ten or twelve days, and then resumed. The treatment should be continued for several years. The remedy is inoffensive, and does not interfere with the digestion or the nutrition.

For Ozena.—

℞.—Sodium benzoate } . . āā ʒiij.
Iodoform }
Tar . . . . . gtt. v.
M. et ft. pulv. Sig.—Insufflate.

℞.—Iodoform } equal parts.
Roasted coffee, finely ground }
M. et ft. pulv. Sig.—Insufflate.

SCHNITZLER, *L'Union Méd.*, No. 49.

An Antiseptic Powder.—

℞.—Pulv. camphoræ . . . 5 parts.
Pulv. bismuthi subnitrat. } āā 20 "
Pulv. acidi salicylici }
Pulv. iodoformi . . . 55 " —M.
S.—As an application to wounds and ulcerous surfaces.

CAZOZZANI, *Rev. Gén. de Clin. et de Thér.*

For Fissures of the Tongue.—

℞.—Acid. carbolic . . . . ʒss.
Tr. iodi } . . . āā ʒijss.—M.
Glycerini }
S.—Apply topically.

Prager med. Woch., No. 23.

Ipecacuanha as an Oxytocic.—Ipecacuanha is recommended as a stimulant of uterine contractions. Two or three doses of ten or fifteen drops of the wine in the course of ten minutes suffice to stimulate a sluggish uterus into energetic activity. *D. M. W., No. 25.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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Subscription Price, Including Postage in North America.

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SATURDAY, JULY 16, 1892.

THE PROPOSED REVISION OF THE CODE OF THE AMERICAN MEDICAL ASSOCIATION.

THE Committee on Revision of the Code of Ethics of the American Medical Association has before it a most important and responsible task. It doubtless desires all the light upon the subject that any and all can give it, and THE MEDICAL NEWS will gladly open its columns to short and pithy communications upon the subject. In order, however, to make our symposia valuable, we reserve, together with the privilege of opening the discussion and of bringing it to a close when we think the proper time has arrived, the further right to direct the discussion from time to time into special channels.

Thus, the fundamental question that must be decided before particular sections of the code, or particular methods of revision are discussed, is whether or not there shall be a code.

Our own view is, that for the present, being confronted with a condition, and not a theory, a code is necessary. We think, too, that it should be as brief and as pointed as possible.

However, there is much to be said on the side of "No Code." It is true that an honorable man does not need written statutes to tell him what he shall do and what he shall avoid, and, unfortunately, it is equally true that the letter of the written code often fails to hold the rascals. All are familiar with the fact that men whose aims and methods are in no essential particular different from those of the frank quack have acquired and maintain proud position and powerful influence in medical societies, conventions, and colleges. The argument drawn from this lamentable state of affairs is, that as the code has failed to prevent such triumphs of chicanery, it is useless, and that what is useless had better be abolished. In further advocacy of the abolition of the code, attention is directed to the medical officers of the United States Army and Navy, who are not subject to the code of the American Medical Association, but are governed by the military tradition that conduct "unbecoming an officer and a gentleman" is not tolerable; and the deservedly honorable repute of this picked body of men is offered in evidence of the elevating influence of the no-code practice.

Without desiring to forestall the more extended discussion we have invited, we must, however, briefly point out what seems to us to be the fallacy of both the arguments cited. It will certainly not be considered as an ungracious reflection on the medical officers in the service of the United States to call attention to the fact that the conditions of admission to that service are such that they who enter it may be justly considered a "GIDEON'S band;" and in view of their small number it is perfectly justifiable to further assert that from the ranks of the members of the American Medical Association in civil life—and thus subject to the code—a much larger body of men could be picked of equally honorable repute and blameless life.

But even more than this, the code under which military surgeons serve is far more stringent than that of the American Medical Association. We should gladly welcome an amendment to the constitution of the latter body providing that no one shall become or remain a member who may be guilty of "conduct unbecoming a physician," *if* we could only be certain that it would be enforced with the same rigorous certainty that attends the proceedings of courts-martial. Establish an efficient court-medical, clothed with plenary jurisdiction and power, composed of men as upright and as indomitable as the medical officers of the United States Army and their compeers in the leadership of the American Medical Association; support that court by fearlessly giving it work to do—and there is

work in plenty—and then, indeed, will a written code become superfluous. But this touches the very heart of the matter. The reason that the code has measurably failed to prevent dishonorable practices by clever dissimulators is for lack of efficient machinery to enforce its prohibitions, and for lack of courage on the part of honest men to set in motion even the cumbersome machinery provided. The power of Professor A, the influence of Editor B, are forces that we shrink from opposing, or we indolently and weakly prefer peace without honor, to the fatigue, vexation, and publicity of war for the preservation of honor. Let the weakest and most obscure—if he be a man of honor—invoke the penal provisions of the laws of any county society subject to the code, and Professor A's power will be broken and the influence of Editor B be as futile as it proved at Detroit when Philadelphia and Pennsylvania so frightened the nostrum manufacturers and their journalistic allies that, despite their wordy threats before the meeting, they dared not come out of cover when the challenge was thrown down. The greatest weakness of the no-code argument, however, is that it looks only at one side; it studiously shuts its eyes to the fact that, even as "hypocrisy is the tribute that vice pays to virtue," so the dissimulation forced upon Editor B and Professor A is a striking tribute to the deterrent influence of the code. It fails to note that men equally base, but less clever, are compelled to avoid many tempting byways of unprofessional conduct; and that even the master-minds of chicane are not bold enough to go so far as their desires would else lead them.

Utopia and the millennium may rejoice in the absence of penal statutes and police, but even Philadelphia would hardly be a desirable place of residence to-day if anarchy prevailed.

STERILIZED MILK FOR THE POOR.

UNDER the above heading the New York daily papers recently printed an appeal from "A Committee of Public-spirited Women" for contributions of money to purchase a larger sterilizing plant, to supply sterilized milk to the children of the poor. It stated that during the previous summer the Committee had entered upon the business of manufacturing, bottling, and distributing such milk at a price slightly below the cost of production, and had supplied 45,000 bottles to 575 sick children.

The appeal does not mention that these children had been benefited by the substitution of sterilized for natural milk, but appears to take for granted that the use of sterilized milk secures immunity from the summer diseases of children, and is a great boon and certain advantage.

It may, however, seriously be questioned whether such is the case. The opposite ground is taken in an important article recently published by DR. EDWARD P. DAVIS in the *American Journal of the Medical Sciences*. The disheartening results obtained in the artificial nutrition of the infants at the Philadelphia Hospital induced him to make a very exhaustive study of the results obtainable by the use of sterilized milk. The results at the outset, he states, when the food of the children was changed from common to sterilized milk, were very startling and gratifying. Many very sick children quickly recovered, and, for a time, that most perplexing problem—the artificial feeding of infants deprived of breast-milk—appeared to be solved. But later on, most serious and baffling disorders supervened. The children who at first had fattened and thriven on sterilized milk became emaciated and anemic; grave intestinal disorders, which resisted every form of medication and treatment, appeared, and finally, these sterilized-milk-fed children perished of non-nutrition.

In the same connection, an elaborate investigation by DRS. LEEDS and CONN, in the last report of the Dairy Commissioner of the State of New Jersey, is of much interest as throwing some light upon the causes of the great mortality alluded to. They find that the prolonged heating of milk to the temperature of the boiling-point of water brings about numerous changes in its composition and properties. The most important alteration is the conversion of the soluble albumin into an insoluble modification, which is difficult of assimilation and digestion. The trouble usually experienced when cow's milk in its natural condition is used in infant-feeding is that its curdy constituent cannot be digested. This difficulty is aggravated when the non-curdy portion, or soluble albumin, is thrown into a semi-curdlike state by strong heating.

These authors strongly insist that bacteria are not naturally present in milk, and that there is no proper excuse for allowing them to get into it. Their presence is mainly due to lack of cleanliness of the cow, the stable, the person milking and handling the milk, and of the vessels in which the milk is preserved and transported. The true remedy

is to be found in an organized system of official dairy inspection and sanitary milk-control. The inspection should begin with the cattle, and should determine whether they are tuberculous or otherwise diseased. The control should begin with the milk in the udder, and follow it all the way to the consumer.

The rapid growth of knowledge and public opinion will probably lead before long to our State Legislatures taking some steps in this direction. In the meanwhile LEEDS and CONN recommend that market-milk should be Pasteurized and not sterilized. Instead of heating to 212°, the temperature of milk during Pasteurization is brought only to 155°F. At this temperature the bacilli themselves are mainly, if not quite, destroyed; and, whilst the spores of the bacilli are more resistant and require the higher temperature for their destruction, the period of their development is delayed. Market-milk after Pasteurization keeps fresh and sweet for thirty-six or forty-eight hours longer than the same milk as at present handled. Most forms of disease-germs also perish under this treatment. As for those that are not killed, it is wiser to risk the remote contingency of their being present than to convert all the milk into an unnatural product in order to get rid of them. This is the view taken of the matter at the Philadelphia Hospital, where the Pasteurized has been substituted for sterilized milk.

REVIEWS.

A SYSTEM OF PRACTICAL THERAPEUTICS. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by WALTER CHRYSTIE, M.D. Vol. III. Diseases of the Skin; Diseases of the Nervous System; Diseases of the Genito-urinary Apparatus; Diseases of the Eye; Diseases of the Ear. With illustrations. 8vo, pp. 1352. Philadelphia: Lea Brothers & Co., 1892.

THIS, the third and last volume of the System of which it forms a part, bears out the promise of the first volume. In the completed work we have presented a mirror of modern therapeutic practice, reflecting great credit upon all concerned. The profession is to be congratulated upon having such a work placed in its hands. The various aspects of therapeutic medicine have been presented in a way such as they never have been before. The articles, as a rule, are representative of the most advanced therapeutics of the day. An encouraging feature lies in the fact that the recommendations for treatment do not consist in a mere recital of drugs, but that all means of treatment are given with laudable detail, and as far as possible the rationale accompanies the recommendation.

The present volume contains thirty-seven papers by different authors, dealing with a much larger number of sub-subjects. The limits of this review will not even permit of individual mention. The average value of the contributions is high. Evidences of lack of rigid scrutiny are here and there detectable. On page 231 we find *hydriatic* for hydriatric—a not uncommon error. We are not aware of any authority for the word *perls* on page 239. On page 256 the name *Captain* appears for Cattani. In the table of contents and on page 259 we find Amyotrophic Lateral *Paralysis*. On page 287, Dawbarn, referring to Loomis, is quoted as recommending "aconite as bleeding the patient into his own veins"; while on pages 1231 and 1232 Hare, *A Text-book of Practical Therapeutics*, is credited with saying that veratroidine "so dilates the blood-paths that a man is bled into his own vessels." On pages 316 and 317 the names Strümpell and Möbius appear improperly without the dieresis. The illustration of papillitis, on page 1011, is described as p*u*pillitis with circump*u*pillary exudation. We doubt the wisdom of perpetuating the term "choreic" as descriptive of the movements seen in cases of infantile hemiplegia. Athetoid seems a preferable designation. These movements possess a peculiar vermicular character not observed in the jerky movements of chorea.

PSYCHO-THERAPEUTICS; OR, TREATMENT BY HYPNOTISM AND SUGGESTION. By C. LLOYD TUCKEY, M.D., Member of the Medico-Psychological Association; Membre Fondateur de la Société d'Hypnologie, etc. London: Baillière, Tindall & Cox, 1891.

THE author dedicates his book to Dr. Liébeault, of the Nancy School, from whom he imbibed a love of the study of hypnotism, and of whom he is an ardent admirer and an earnest disciple.

The fact that the present volume is the third edition of the work, the first of which appeared January 1, 1889, is strong evidence of the widespread interest taken by the profession in hypnotism during the past few years.

Dr. Tuckey holds that medical men who would give the subject a fair study should go to Nancy rather than to Charcot's clinic in Paris, where hypnotism is looked upon as a toy and not as a therapeutic agent of any value. The author submits (and we think with great reason) that in view of the fact that such high authorities as Charcot, Richet, Hack Tuke, Heidenhain, Krafft-Ebing, and Tamburini assert that hypnotism is a reality, it can no longer be doubted that the phenomena may actually be induced. At the famous school of Nancy it is claimed that any person can be hypnotized if the proper methods are employed and trials enough be made. The author admits that many evil consequences may follow the employment of the agency by ignorant and unauthorized persons, but claims that these dangers are insignificant when the measure is employed by educated physicians. The cures effected by it are, Dr. Tuckey believes, as permanent as those effected by any other means. Many readers will, however, doubtless take *cum grano salis* the statement that menorrhagia, moral depravity, neurasthenia, and sciatica have been cured by hypnotism.

Although the author is a strong advocate of the claims of hypnotism, it must be admitted that he has presented the matter very fairly, being animated by a

lofty scientific spirit. He is familiar with the works of all the writers upon the subject, as evinced by his frequent references. The *Revue de l'Hypnotisme*, a periodical devoted to the subject, is freely quoted. The work is a most interesting one and deserves to be widely read.

OUTLINES OF ZOÖLOGY. By J. ARTHUR THOMSON, M.A., F.R.S.E., Lecturer on Zoölogy in the School of Medicine, Edinburgh; Joint Author of the "Evolution of Sex"; Author of "The Study of Animal Life." With thirty-two full-page illustrations. New York: D. Appleton & Co., 1892.

IN these days of active biologic research, well-written handbooks in any department of biology are always in demand, and are always welcome. We have such an one in the very inviting little volume on zoölogy just published by the distinguished Edinburgh scientist, Professor Thomson. Tastefully bound, well printed and in clear, attractive type, with the text illustrated by over thirty diagrammatic figures on plates, this work at first sight cannot fail to please the eye of the student in the biologic laboratory. And, indeed, in its nearly 650 pages, rounded off with its admirably arranged index, our author has certainly succeeded in presenting in good, systematic, as well as scientific, style a very excellent outline of the subject of zoölogy as it is now understood by our best zoölogists. More important than all, the work bears the stamp of the mind of a practical teacher and an actual worker in the laboratory; in other words, it is not a closet-compilation, gathered together simply for the purpose of sale, but, as its author states in his preface, is to be used "as an accompaniment to several well-known works cited in the introduction, most of which follow other modes of treatment." We find the work to be morphologic as well as physiologic, founded upon the firm basis of the law of evolution, with the main characters of the principal types of living animals strongly defined and compared, the whole being frequently summarized, throughout its pages, in the most useful kind of tables. In its twenty-five chapters Professor Thomson has not neglected, too, to clearly touch upon such important points as paleontology, geographic distribution, and natural classification, all of which are tersely handled with great skill. Our space will not admit of a criticism in detail, but it will admit of our saying that the work before us is an able guide to the subject of which it treats, and that such few imperfections as it may possess another edition can easily eliminate.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Forty-third Annual Session, held at Detroit, June 7, 8, 9, and 10, 1892.

SECTION OF DERMATOLOGY AND SYPHILOGRAPHY.

FIRST DAY—JUNE 7TH.

The Chairman, DR. L. D. BULKLEY, of New York, read an address on "Recent Advances in the Treatment of Diseases of the Skin," in which he reviewed the remedies recently introduced into dermato-therapy.

Reference was made to the employment of antipyrin in the treatment of neurotic eruptions and pruritus; of pilocarpine for forms of seborrheal disorder; of potassium iodide for psoriasis. The subcutaneous injection of mercury (especially the insoluble salts, as the salicylate) in syphilis was highly recommended.

DR. L. A. DUHRING, of Philadelphia, criticised the statement that in dermatitis herpetiformis no remedy is of value. He finds that sulphur is most useful. An ointment of sublimed sulphur and oil, in the proportions of 8 : 100 may be employed.

DR. RUSSELL, of Utica, N. Y., expressed the view that sodium salicylate is more valuable than antipyrin in the treatment of pruriginous affections.

DR. LOUIS A. DUHRING, of Philadelphia, read a paper on the "Treatment of Acute Vesicular Eczema," a disease, he stated, that is frequently seen by the general practitioner. The remedies used often aggravate the disease. The affection generally appears suddenly, and demands active local treatment directed to the relief of the congestion and the cell-proliferation. The mode of applying the remedies is the important factor. In acute erythematous eczema washes are tolerated better than salves, and pastes are more useful than salves. In acute vesicular eczema, mildly stimulating washes, followed by salves or pastes, are preferable to washes alone. "Rubbing in" and friction are usually harmful. The regulation of the distribution of the blood and lymph, and a direct, local sedative action upon the cutaneous nerve-filaments, are the two most important effects desired. One of the best remedies is modified black-wash, followed by the use of cloths spread with oxide of zinc ointment or paste, two or three times daily. The wash should be diluted with one or two parts of lime-water, and a little mucilage of tragacanth added. A solution of boric acid is useful, especially when the horny layer is absent. Weak resorcin or salicylic acid washes are soothing. A plasma of five parts of tragacanth, two parts of glycerin, and ninety-three parts of boiling water is tolerated when fats are objectionable. A lotion holding in suspension prepared calamine, ʒss; oxide of zinc, ʒss; glycerin, ♏xv; lime-water, fʒiv, and to which may be added resorcin, tincture of coal-tar, carbolic acid or ichthyol—all weak—is valuable. The best ointments are diachylon, freshly made from purest olive oil; oxide of zinc and bismuth; refrigerant "cold creams" containing water are also of service. Dusting-powders are not so useful. Cleansing agents should be used cautiously and sparingly. Rest, for the circulation of the fluids, is of importance, especially when a large surface is implicated.

DR. C. P. RUSSELL, of Utica, read a paper entitled "Eczema of Infancy and Childhood, with Special Reference to Etiology and Dietetic Treatment," which is to appear in a subsequent number of THE MEDICAL NEWS.

DR. OHMANN-DUMESNIL, of St. Louis, read the paper of DR. GEO. T. ELLIOT, of New York, on "A Note on Reflex Eczema in Infants." He stated that eczema of reflex origin occurring in infants is easy of recognition and susceptible of differentiation from eczemas of different pathologic origin. Its localization is most characteristic, occupying, as observed in over three hundred cases, invariably and in a symmetrical manner, both cheeks, rarely the scalp, and when on the extremi-

ties, occurring on the extensor surfaces and not on the flexors. The wrists and backs of the hands are frequently affected, but the trunk only exceptionally, and then in severe and protracted cases. The eruption is always in the form of circumscribed patches, constituted by the aggregation of numberless papules or vesicles, or papulo-vesicles, the aspect of the entire patch being herpetiform. The itching is most intense and leads to scratching and tearing. Etiologically, gastric or gastro-intestinal, or intestinal disturbances alone are found, or dietary irregularities, quantitative or qualitative, or dentition, or even slight cystitis, intestinal worms, etc.; in many cases an adherent prepuce acts as the exciting cause of the cutaneous process.

The eruption will vary in accordance with the presence or absence, removal or recrudescence of one or another of the reflex causes, this variation occurring from day to day or several times a day. At one time the eruption is almost completely gone, and a few hours afterward it recurs in its original intensity. If examined with care it will always be found that the relapse has been preceded by some return of the original reflex cause, or by the development of some new one. The cases originating from the condition of the prepuce are the most intractable, because little attention has hitherto been given to this as a cause, and because it is not suspected or looked for.

The importance of differentiating these cases from other cases of eczema lies in the indications for treatment. This latter is not represented by a specific, but has to be directed against every possible condition apparently or possibly acting as a reflex irritant. In consequence, the systemic health, the hygienic and dietary conditions of the child should be brought up to the normal, and every precaution should be taken to guard against the return of any disturbance, functional or otherwise. The remedies are indicated by the conditions existing, and should vary in accordance with the requirements presented, but in every case they are the same as would be used in the absence of a cutaneous eruption. When every reflex cause has been excluded, and only an adherent prepuce is found, this should, if possible, be stripped back; otherwise circumcision should be resorted to. The treatment is thus entirely directed to the removal of the reflex cause, and the local treatment is purely accessory and of minor importance. Salicylic acid, gr. x, ad ungt. zinc. oxid., ℥j, is as good an application as any. If there is much itching and only little weeping, liquid pitch, ʒj, or fluid extract of ergot, ʒj, may be added, oftentimes with benefit.

DR. L. D. BULKLEY, of New York, read a paper "On the Diagnosis and Treatment of Eczema Seborrhoicum."

In the discussion of the four preceding papers, DR. OHMANN-DUMESNIL, of St. Louis, Mo., stated that he believed eczema seborrhoicum to be dependent upon some constitutional condition. The eruption is most pronounced on the hairy chest of man, especially in the presence of excessive perspiration. The disease is probably an inflammation of the sweat-glands. A zinc salve will help only momentarily. Resorcin has been found useful.

DR. GARRY stated that he suffers with eczema seborrhoicum of the scalp, which disappears readily in cold weather on the application of a resorcin preparation, but in warm weather is more obstinate.

DR. BULKLEY stated that he has also noticed that eczema seborrhoicum seems aggravated by warm weather. It is probable that in warm weather the parasite on which the disease depends finds more propitious conditions for vegetation, perhaps on account of the perspiration.

DR. SHOEMAKER stated that he has found hamamelis, alone or in combination with water or glycerin, the best remedy in the treatment of vesicular eczema. In seborrhoic eczema constitutional treatment seems indicated, together with external applications.

DR. RICKETTS stated that in seborrhoic eczema he has had the best results from a 15 per cent. ointment of ammoniated mercury. The scalp may be rubbed with a stimulating lotion. An ointment of mercuric iodide, too, has likewise given excellent results.

DR. DUHRING expressed his doubts as to the entity of seborrhoic eczema. Many cases are improperly so called. Eczema is often complicated with seborrhea of the face and of the body. In some cases the eczema, in others the seborrhea, predominates.

Dr. Duhring referred to a case of seborrhea in which red plaques appeared on the face, cheeks, mouth; the patient never complained of any itching. The condition disappeared after a few local applications, but it soon recurred. Cases of this class are usually not cured, but only relieved. Seborrhea is not contagious, and is not dependent on the presence of a parasite. Eczema seborrhoicum is to be treated locally; it is likely to get well with the use of resorcin. Eczema, on the contrary, is not relieved so easily.

DR. RAVOGLI expressed the view that it would be well to do away with the name eczema and substitute another more expressive, such as catarrhal dermatitis. Nothing is gained by prefixing the adjectives erythematous, vesicular, pustular, etc. What is wanted is an adjective indicative of the etiology of the affection; thus, nervous, seborrhoic, tuberculous, parasitic.

Dr. Ravogli reported a case of nervous eczema in a man who had such an idiosyncrasy to tobacco that whenever he smoked a cigar an eczematous eruption appeared on the back a day later. Cases are of brief duration, but relapses are common. Not many remedies are required in the treatment. Applications of starch powder, repeated every few hours, are the most beneficial; in case the burning sensations and the inflammatory symptoms are very pronounced, applications of cold cloths wrung out of water containing a small proportion of lead subacetate are to be preferred. In cases of seborrhoic eczema, resorcin, from thirty to fifty grains to the ounce, is useful.

SECOND DAY—JUNE 8TH.

Morning Session.

DR. B. MERRILL RICKETTS, of Cincinnati, read a "Report of Forty Cases of Psoriasis Treated Exclusively with Arsenious Acid."

DR. DUHRING said that cases of psoriasis differ decidedly among themselves. Some cases of eczema are scarcely to be distinguished from psoriasis. Psoriasis

sometimes presents characters of an inflammatory process, and arsenic internally would aggravate the condition. In cases of universal psoriasis of a chronic type arsenic is useful. Many cases can be benefited without any internal treatment, reliance being placed only upon external medication. It seems a mistake to designate any remedy as a specific for psoriasis.

DR. CARRIER referred to a case in which pustules appeared, which, after a course of arsenical treatment, dispeared, and the lesions of psoriasis returned. Better results are to be obtained by local means than by internal medication.

DR. BEARDSLEY stated that he has tried copper arsenite with good results. He thinks a combination of both external and internal treatment the most valuable.

DR. RUSSELL reported good results from the use of arsenic in diffuse psoriasis. He proposed the employment of an ointment of ammoniated mercury or of mercuric iodide, of not too great strength, for external applications.

DR. HERR expressed the view that, despite the differences of opinion, the use of arsenic is very valuable in psoriasis. He referred to cases of psoriasis in patients whose nutrition was poor, in which arsenic rendered great service.

DR. SHOEMAKER stated that arsenic is a valuable remedy at times, but it is no specific. The selection of remedies in psoriasis depends upon the type of the disease and its cause.

In cases of psoriasis of an inflammatory type the internal administration of antimony has been very useful. In the chronic form of psoriasis, potassium iodide has given good results. Arsenic can be employed hypodermatically in large doses and also in the form of suppositories.

DR. BULKLEY stated that arsenic is very effective in bullous eruptions, as in pemphigus. To be effective the drug must be given in small doses frequently repeated. A drop of the officinal solution of potassium arsenite may be given every two hours. Chrysophanic acid and pyrogallic acid, mixed with collodion, act very quickly, and are to be recommended.

DR. CARRIER asked if chrysophanic acid acted only topically. He referred to a case in which he applied chrysophanic acid to one side of the body, and the eruption disappeared upon both sides.

DR. SHOEMAKER stated that chrysophanic acid is objectionable as a salve or in solution on account of its staining. Incorporated in soap it removes the scales, acts readily, and does not stain.

DR. RICKETTS, in closing, stated that he had not intended to present arsenic as a specific in psoriasis. The drug does, however, have some influence on the peripheral nerves; it increases the supply of blood and improves the nutrition of the skin. The hypodermatic administration is the most accurate and effective method.

DR. RAVOGLI, of Cincinnati, read a paper on "The Influence of the Nervous System on Certain Disturbances of the Skin."

After a brief physiologic consideration of the action of the vasomotor nerves upon the nutrition of the skin he pointed out how the nutritive process may be disturbed by these nerves, to which the efficient cause of many affections of the skin can be traced. The connection between the trophic nerves and the sensory filaments was dwelt upon, and the fact pointed out that lesions of sensibility of the skin often accompany angioneurotic affections.

DR. RAVOGLI reported three cases, upon which the paper was based, one of maculæ atrophicæ (liodermia), one of atrophy of the pigment (leukodermia), and one of sclerosis of the skin (sclerodermia). All three cases were in persons presenting derangements of the nervous system. The conclusion was reached that the affections were dependent upon the vasomotor nerves, as a result of derangement of the central nervous system. It was held that leukodermia, liodermia, and sclerodermia differ only in degree, but are alike in being atrophic processes, the first involving the pigment, the second the corium, and the third the whole skin.

DR. DUNLAP expressed the view that maculæ atrophicæ present great similarity to morphea.

DR. HERR referred to the case of a young woman, with epilepsy and discoloration of the cheeks, who could not feel the prick of a needle, and who suffered with cephalalgia. In a case of Addison's disease, the patient had no pigment on the hands. On post-mortem examination the suprarenal capsules were found degenerated. Dr. Herr concurred in the view that these diseases are the result of derangements of nutrition.

DR. DUHRING expressed his agreement with the views of Dr. Ravogli. There is no specific treatment. This must be varied to meet the requirements of the case. Dr. Duhring held that the sympathetic nerve is always involved in these cases.

DR. OHMANN-DUMESNIL referred to a case of leukodermia symmetricum in a woman with spinal anemia, and to one of periodic hyperhidrosis in a woman, as indicative of the influence of the symphathetic nerve. In another, atrophy of the skin and of the muscles developed in a girl after a severe burn. A case of warts and alopecia areata was likewise ascribed to nervous disturbances.

DR. BULKLEY reported a case of atrophy of the pigment of the head occurring after nervous disorders.

DR. DUNLAP, of Syracuse, read a paper on "Pemphigus Hemorrhagicus, or Purpura Bullosa," reporting a case of bullous eruptions, of chronic course, with repeated relapse. At first the bullæ were filled with serous fluid, which was subsequently replaced by bloody fluid. The bullæ were preceded by some redness of the skin. The patient did not complain of itching, but of pain.

DR. RAVOGLI commended caution in the diagnosis of pemphigus. Many cases that were called pemphigus are now recognized as dermatitis herpetiformis bullosa, Duhring. The diagnostic characteristics of dermatitis herpetiformis are polymorphism of the eruption, the presence of pruritus, the frequency of relapse, and the condition of apparent health. The case reported appeared to be one of pemphigus. The differentiation is of the greatest prognostic importance, when it is borne in mind that dermatitis herpetiformis is curable, while pemphigus is essentially fatal.

DR. RUSSELL expressed the opinion that, from the history of the case, the polymorphism of the eruption, the relapses, the redness appearing before the evolution of the bullæ, the case was likely one of dermatitis herpetiformis.

DR. DUHRING expressed the view that the case was one of pemphigus hemorrhagicus. Hemorrhage is not uncommon in connection with bullous diseases. Bullæ are sometimes connected with hemorrhagic diseases. Cases of pemphigus are very rare. In the case of a woman at the Philadelphia Hospital a bullous eruption appeared in relation with menstruation.

DR. BULKLEY stated that in New York bullous eruptions are designated as hydroa, while dermatitis herpetiformis is employed to include the atypical cases of vesicular eruptions. Such a case as that reported would be described as hydroa hemorrhagica. Dr. Bulkley would not call it pemphigus because of the failure of arsenic, and not dermatitis herpetiformis on account of the absence of pruritus.

Afternoon Session.

The following officers were elected for the ensuing year: *Chairman*, Dr. L. A. Duhring, of Philadelphia; *Secretary*, Dr. W. H. Dunlap, Syracuse, N. Y.; *Executive Committee*, Dr. L. D. Bulkley, of New York; Dr. D. A. H. Ohmann-Dumesnil, of St. Louis; Dr. A. Ravogli, of Cincinnati.

DR. RUSSELL reported "A Case of Acute Circumscribed Edema of the Skin."

DR. OHMANN-DUMESNIL referred to a case in a laborer who had his finger scratched, and on the following day presented cutaneous edema, which looked like urticaria, being whiter than the normal skin. He bathed the part with a solution of mercuric chloride, and in two days the edema disappeared. Cases of this kind are to be ascribed to an inflammatory process involving the lymphatic vessels, dependent upon a slight infection.

DR. DUHRING expressed the view that there is a close relation between urticaria and acute circumscribed edema.

DR. RAVOGLI stated that he had often seen edema of the skin limited to a certain region, especially of the extremities, but he always found that there was a certain degree of lymphangitis, while careful examination would disclose the presence of a scratch, or an abrasion, or a pustule.

DR. OHMANN-DUMESNIL, of St. Louis, read a paper on "Some Successful Methods in the Treatment of Alopecia and Alopecia Areata," which is to appear in a subsequent number of THE NEWS.

DR. RUSSELL read the report by Dr. Dunn of "A Case of Tubercular Adenitis, with General Alopecia and Pruritus." (See THE MEDICAL NEWS, July 9, 1892, p. 41.)

In the discussion of the two preceding papers DR. WILSON, of Kansas City, reported the case of a letter-carrier who lost the hair all over his body. By the use of pilocarpine in one-eighth grain doses, and electricity, the growth was, in a short time, completely restored.

DR. HERR stated that he has treated a number of cases of alopecia areata, some of neurotic origin; some of parasitic origin. He has at present under treatment a patient with alopecia areata, in which he is using carbolic acid by the method of Bulkley, with satisfactory results. From his experience he is inclined to believe that most of the cases are of parasitic origin.

DR. SHOEMAKER stated that he has found the application of massage and galvanism combined to yield the best results. He objects to the application of pure carbolic acid on account of the pain.

DR. RUSSELL stated that he has not seen many cases of alopecia areata, and most of these were of neurotic origin. He used the French method, rubbing with cantharidal collodion till vesication occurred, then applying a salve of yellow sulphate of mercury, thirty grains to an ounce of vaselin. In other cases he has used chrysophanic acid, thirty grains to an ounce of vaselin, with good results.

DR. DUHRING confessed his inability to distinguish a neurotic and a parasitic form of alopecia areata. He was not aware that he had ever encountered a case of parasitic origin. He places little reliance upon local treatment; the general nutrition is the principal point.

DR. RAVOGLI stated that if atrophy of the pigment and atrophy of the connectve tissue can be produced by disorders of nutrition, there is no reason why the hair should not fall out from similar influences. In most of his patients with alopecia areata a parasitic influence appears to be present. The presence of lanugo hair on the bald spots, with brittle hairs of dark color scattered in tufts over the surface of the scalp, and the unbearable itching, suggest a parasitic origin. In treatment any strong parasiticide is useful. Dr. Ravogli has, with good results, painted the spots with tincture of iodine, rubbed them with crude coal-oil, washed them with a strong solution of sublimate, with glacial acetic acid, treated them with oleate of mercury, and many other antiparasitic remedies. The best results in these diseases is to be obtained by the use of the forceps, removing the lanugo hairs and the stumps of the broken hairs. Most cases of common alopecia are due to the presence of seborrhea, alopecia pityroides. The general nutrition is often impaired. In these cases the application of resorcin is of great advantage, while the tincture of tar will bring the skin back to its normal condition.

DR. BULKLEY stated that a good deal of alopecia is dependent upon seborrhea and is readily corrected by the use of resorcin, from 5 to 6 per cent. in water or alcohol. In every case of alopecia, phosphates and milk are to be given. In cases of alopecia areata in which broken hairs are found, there is no doubt that parasites are present. When alopecia areata is found among several members of the same family this fact is not to be ascribed to contagion, but to exposure to the same hygienic conditions. In alopecia areata Dr. Bulkley paints the spots with pure carbolic acid, repeating the application once a week. This does not produce any considerable pain, and the patients never object to it. The absence of pain is an argument in favor of a neurotic origin. Internally strychnine and phosphoric acid in considerable doses are administered.

DR. OHMANN-DUMESNIL stated that he has applied carbolic acid over an area of ten square inches on the scalp in a case of alopecia areata, without producing much pain, repeating the application twice a week, without any objection on the part of the patient. Parasitic alopecia areata is to be distinguished by the presence of a round area, with small scabs and thin, brittle hair.

THIRD DAY—JUNE 9TH.

DR. W. F. BREAKY, Ann Arbor, reported a "Case of Lupus." The patient was a woman with lupus on the

cheeks and on the nose. Tuberculin was used in treatment. The first injection contained five milligrams, and was followed in eight hours by a temperature of 102.4°, a pulse of 120, and marked local reaction. A second injection was given six days later, and was followed by a temperature of 103.6° and a pulse of 120, with more marked local reaction, with effusion and exudation on the nose and cheeks. After the injections there was some improvement, but subsequently the lupus was worse.

DR. ATKINSON, of Baltimore, stated that there is no doubt that tuberculin has a powerful influence on the tuberculous process, and the results of its employment are rather encouraging. There is no agent that possesses a like power. It seems reasonable to hope for a specific treatment for tuberculosis.

DR. DUHRING stated that his experience with tuberculin has been limited and unsuccessful. He reported the case of a woman, thirty-five years old, with patches of lupus on both cheeks, on the nose, and extending to the throat. The tuberculous infiltration not only involved the corium, but also the subcutaneous tissues, so that it was impossible to pick up the skin in folds. As it appeared that nothing could be accomplished by local treatment, inoculation with cultures of erysipelas were used. The experiment was a failure; no reaction took place. The ordinary superficial patches of lupus can be scraped off and recovery secured, but when the infiltration is deep and extensive, injections become necessary.

DR RAVOGLI related the case of a man with lupus who had been treated in the Marine Hospital in Washington. He took over one hundred injections; not only was there no improvement, but he was actually worse. On the other hand, Dr. Kramer, of Cincinnati, presented to the Academy of Medicine a case of lupus vulgaris in a tuberculous patient that had been treated with tuberculin. At different times various local applications had been made, but without result. Finally the employment of tuberculin was begun, an injection of from one to five milligrams being given every two or three days. The improvement was speedy and decided.

DR. HERMAN GOLDENBERG, of New York, read a paper entitled "Chancre of the Finger, with Special Reference to Adjacent Adenopathy." He related that in some cases of chancre of the finger that he had observed, and that he had found reported in the literature, the axillary glands were enlarged, while the epitrochlear glands were not affected. This appears strange if it be considered that the syphilitic virus spreads by the lymphatics; it would be expected that in all cases the epitrochlear lymphatics should be enlarged.

Lewin, of Berlin, has given an explanation that the deeper lymphatics enter the axillary glands, the superficial ones the epitrochlear glands. Following the description given by Sappey in his elaborate work on the lymphatics, the conclusion was reached that Lewin's theory is not correct, but that the lymphatics of the first three fingers, as a rule, enter the axillary glands, while those of the fourth and fifth fingers terminate in the epitrochlear glands. It is therefore to be expected that in chancre of the fourth and fifth fingers epitrochlear swelling will be found the rule, and not the exception.

DR. RAVOGLI reported a case in which a chancre appeared beneath the nail of the third finger of the right hand. When first observed, there was a pronounced maculo-papular eruption all over the body. The ganglia were universally swollen and the epitrochlear gland of the arm, corresponding with the infected finger, was hard and palpable, while that of the other side was scarcely perceptible. In another case a chancre was found on the inferior portion of the second phalanx of the thumb of the right hand, in a man in whom, from keeping the hands in water, a fissure had formed on the thumb. He also had a maculo-papular eruption, with enlargement of the ganglia. The epitrochlear gland of the corresponding side was enlarged and swollen.

DR. DUHRING reported the cases of two medical men who believed that they had acquired syphilis in surgical work. They had erythematous eruptions, but no chancre could be found. The eruption proved to be not specific.

DR. BULKLEY reported the case of a patient with gonorrhea, who likewise presented symptoms of syphilis. A chancre could not be detected until discovered on a finger, covered by a piece of plaster, the patient believing it only a simple scratch.

In another case, in a man with eczema and a fissure a little above the rectum, an extragenital chancre developed in the fissure. It appeared that the man had taken a sea-bath in a pair of drawers that had been previously used by another person.

DR. LYDSTON stated that it must not be overlooked that there is no syphilis without the preëxistence of a chancre. He related the case of a woman in whom a chancre developed upon the gum from the application of carbolic acid to a carious tooth by means of an infected instrument.

DR. LYDSTON read a paper entitled "Circinate Syphilide, with Report of a Case," which is to appear in a subsequent number of THE NEWS.

DR. DUHRING stated that among a large number of syphilitic patients he had met with many cases of this form of syphilide, especially among the lowest class of persons, with broken-down constitutions and addicted to alcohol. He expressed the view that the nervous system has a good deal to do with the production of this form. Psoriasis presents some similarity to syphilis circinata, especially when on the face and neck, and is to be considered in the differential diagnosis.

DR. BULKLEY stated that it is unusual to see such a form of syphilis in the course of only four months. It may be that the nervous system is at fault.

DR. RAVOGLI contended that the division of the symptoms of syphilis into primary, secondary, tertiary, and quaternary is a mistake, conveying the impression that the symptoms follow one another in a definite succession. The best division is that of Virchow into an early and a late stage, the lesions of the early stage being characterized by inflammatory symptoms, and those of the later stage by infiltration and new growth. Circinate syphilide is but a nodular form, in which small nodules are situated closely together in groups, disposed in half circles or in circles. In the case reported there was probably also a seborrhea, in consequence of which thick crusts formed. The form observed about the hands was nothing else but a psorasis palmaris, of which there are two forms, one papular and the other ulcerative. The circinate forms of syphilis and psoriasis

palmaris are usually obstinate to treatment. Dr. Ravogli stated that he had obtained beneficial results from the use of a bath of corrosive sublimate, the hands being kept in a solution of 1 : 1000 for about one hour daily.

DR. EDWARD PREBLE, of Cleveland, presented a paper "On a New and Practical Mode of Grouping Affections of the Skin, with a Brief Analysis of One Thousand Cases." The following classification was proposed:

I. Deformities (anomalies of embryonal and trophic origin, and secondary acquired and artificial malformations).

a. Redundancies. 1. Simple diffuse hypertrophies (ichthyosis, keratosis, pilaris, hypertrichosis, lentigo, telangiectasis, etc.). 2. Nevi (vascular and non-vascular). 3. Benign tumors (fibroma, lipoma, angioma, steatoma, etc.).

b. Defects. 1. Simple defects or atrophy (albinismus, leukoderma, alopecia, rugæ, atrophia senilis, etc.). 2. Qualitative atrophies and dystrophies (colloid degeneration, myxedema, xanthoma, scleroderma, etc.).

c. Secondary and artificial deformities (cicatrices, pigment-deposits, tattoo-marks, argyria, melasma from malaria, etc.).

d. Persistent anomalies of function (livedo, hyperidrosis, comedones, xerosis, etc.).

II. Injuries (acute dermatitides, acute angio-neuroses, rashes, etc.).

a. Causes external. 1. Inanimate cause (effects of mechanical irritation, chemical irritation, heat and cold, etc.). 2. Animate cause (all forms of suppuration, phlegmon, furuncle, whitlow, impetigo, ecthyma; and initial lesions of specific inoculable diseases, erysipelas, glanders, charbon, vaccinia, chancre, etc.).

b. Cause internal. 1. Reflex source (pruritus, urticaria, etc.). 2. Toxemic source (exanthemata, scarlatina, variola, varicella, etc., drug-eruptions, erythema multiforme, erythema nodosum, herpes iris, pemphigus, purpura, etc.). 3. Neuritic source (herpes zoster and kindred affections). 4. Hidrotic source (lichen tropicus, sudamina).

III. Diseases.

a. Local origin. 1. Occupation-dermatoses (corns, callus, professional eczemas, etc.). 2. Parasitic diseases (scabies, pediculosis, favus, tinea tricophytina, verruca vulgaris, molluscum contagiosum, etc.).

b. Cutaneous phenomena of general, chronic, infectious diseases (syphilis, tuberculosis, lepra, sarcoma, carcinoma, elephantiasis Arabum, etc.).

c. Diseases at present unclassified (etiology complex or occult). 1. Eczema (infantile, capitis, manuum et pedum, cruris, flexuarum, orificiorum, etc.). 2. Diseases located in the follicles of the skin (acne juvenilis, acne rosacea, acne cachecticorum, sycosis, dysidrosis, etc.). 3. All other diseases (psoriasis, lichen planus, prurigo, etc.).

The relative frequency in one thousand cases was found to be: Deformities, 21 per cent.; injuries of local origin, 26½ per cent.; injuries of internal origin, 11½ per cent.; diseases of local origin, 13 per cent.; general diseases, 8 per cent.; diseases of complex or unknown etiology, 20 per cent.

DR. ELISHA CHENERY, of Boston, presented a paper entitled "Experiences with Scabies." He stated that scabies, though laughed at, is an important disease, made so by its active contagiousness, the difficulty of diagnosis and cure. He related the case of a clergyman who took a little girl from a poor-house, and through her transmitted the itch to nearly all of the good families of his parish, embracing parts of several towns. A well-to-do family had scabies from grandmother to baby, and spread the disease because their wealth and station set them above having the itch.

To be successful, the treatment of scabies has to be followed up to all of the affected persons and their infected clothing.

Forty years ago the disease was rare in Boston. Now it is annoyingly present, especially in the low foreign quarters, where it is so firmly entrenched that it is next to impossible to dislodge it. It, therefore, becomes the duty of the Board of Public Health to devise means to thoroughly stamp it out. Its removal is more than the physician, single-handed, can do; so the matter becomes one of public interest, and should so be regarded and treated.

DR. W. H. RIGHTER, of Topeka, Kansas, presented a "Report of a Case of Verruca Papillaris of the Upper and Lower Lips." The case was that of an Englishman, fifty-five years old, who presented large warts or verruca papillaris upon the lips. The lower lip was completely covered with warts, and upon the upper lip there were two large ones. The growths had begun to appear at the age of eighteen, and at the age of twenty-one they were fully developed. The man considered his condition a deformity and an annoyance, and was anxious to have the masses removed. After a week's treatment with the stick of silver nitrate, applied daily, the warts had disappeared, and in another week the lips were restored to their normal appearance.

CORRESPONDENCE.

QUACKERY IN THE TREATMENT OF ALCOHOLISM.

To the Editor of THE MEDICAL NEWS,

SIR: In view of the position taken by you in such matters, I enclose circulars of the Plymouth Institute, of Warsaw, Ind., an institution which, by a three weeks' course of treatment with the "Borton Cure"—"rum's new foe"—originated by Dr. T. A. Borton—guarantees a perfect cure for the liquor and morphine habits. The company modestly claims: "We never fail to effect a cure, no matter how bad the case may be." One point upon which stress is laid is that the patients constantly have access to whiskey, with, nevertheless, "the *positive assurance* that the appetite for it will not outlast the *third day* of treatment."

One evening recently, while Dr. Borton and an agent of the institute, a Mr. Cooper, were in this city for the purpose of starting a branch here, I had an opportunity, with a small company of gentlemen, of meeting them. The conversation became quite interesting and instructive, but did not succeed in developing the enthusiasm and admiration for this institution that was, I suppose, expected.

Dr. Borton stated that the Plymouth Institute has been in operation about two years, and is having a large

patronage. His remedy for the liquor habit he claimed to be a specific, acting by causing in three days such disgust at the taste and sight of liquor that an unconquerable and permanent aversion is created; by some magical effect the taste of these beverages (but not of any other article of diet) is made so disagreeable—"at first as if pepper had been put in"—that the habit is for this reason at once abandoned. The ingredients were stated to be such as could be obtained at any drug-store on a prescription. General treatment is also given. Great stress was laid on the point that the desire for liquor is a disease, not a habit, though how that theory or name helps matters is not clear to my unenlightened mind, as if a disease were necessarily easier to cure than a habit. The institute does not undertake the treatment of persons who are unwilling to be cured, while claiming 100 per cent. of perfect cures of inebriates who desire relief. Applicants with organic lesions advanced to any degree are also rejected.

The morphine treatment consists in the administration of a substitute for the opiates, both being subsequently withdrawn.

In answer to some pertinent questions Dr. Borton could give no valid reason why the medical profession generally could not or should not administer his remedy as well as himself. The most that he could claim was that a slight amount of special study and training were necessary to perfectly qualify physicians to employ his treatment, and that it required considerable personal attention and care, say three calls daily, which he professed to fear physicians would not give. He admitted that the remedy could be applied with ordinary professional skill; that it was only of average potency—stronger than many drugs, but not so strong as numerous others, and that its injudicious or inefficient application would result in no greater harm than the careless administration of many other drugs.

It was suggested that, if his treatment, as he claimed, is or could be made so powerful an agency in diminishing intemperance and its evils, the usefulness to humanity of "rum's new foe" would be vastly increased by publishing it for the use of the whole medical profession, and so making it more generally accessible to the masses suffering from the physical and moral demoralization of alcoholism, and that under these circumstances, keeping the remedy secret for the purpose of holding a lucrative monopoly, thereby contracting its sphere of alleged usefulness, was quite shamefully selfish and decidedly unphilanthropic. On being pushed with these suggestions Dr. Borton seemed embarrassed, or ashamed, and had but little to say. What he did say was to the effect that his course was not, to be sure, quite professional; that his conscience was not quite easy in the matter; that it was a tender subject with him, and that he didn't like to talk about it.

To the suggestion made in his behalf that a person is entitled to the rewards and profits of his inventions and discoveries, it was replied by the gentleman who principally had been showing up Dr. Borton's real motives, and who has been Commissioner of Patents, and is not a physician, and whose opinion on this subject, therefore, deserves great weight, free from any suspicion of prejudice, that the inventions for which the patent system secures certain privileges and rewards are especially mechanical appliances which are not essential to the happiness and well-being of mankind, but are simply additional material conveniences and luxuries; but that, while it is proper to thus encourage such inventions, yet the case is entirely different with agencies that can profoundly affect the issues of life and health (especially those that have such a promise of power and beneficence for the moral and physical well-being of humanity as was claimed for the "Borton Cure"), and no monopoly should be allowed; no restrictions whatever placed in the way of the freest and broadest dissemination and usefulness of such agencies. The gentleman referred to said that he would willingly contribute liberally toward rewarding Dr. Borton for his discovery and helping him disseminate it through the land; but not one cent would he give to send anyone to the institute, and so encourage him in such a monopoly.

This man, therefore, by his own admission, shows that the high-minded philanthropy which he and his like profess and parade is entirely an advertising sham. While no one can prevent them from trading upon men's physical and moral weaknesses, yet their motives should be shown up to the world in all their base selfishness; that their object is not at all benevolence and charity, but solely selfish financial gain at the expense of the great mass of inebriates. There are thousands of temperance-workers who are devoting their time, energy, money, and lives to diminishing the evils of intemperance, and they are doing this unselfishly, gratis, entirely for the good of mankind. A true humanitarian would scorn or never dream of using for purposes of gain a panacea for drunkenness which he might discover, but would give it free to all the world, carrying out the principle that salvation is free. The (alleged) salvation for body and soul offered by the Plymouth Institute comes only at a good round sum.

Respectfully yours, J. BEN NICHOLS.

1419 HOWARD AVENUE, WASHINGTON, D. C.

ALCOHOLISM.

To the Editor of THE MEDICAL NEWS,

SIR: Alcohol, in whatever form, either diluted with water, as in whiskey or brandy; or in a solution with water mixed with grape-constituents, as wine; or in the form of fermented liquors made from malted grain, as beer and ale, acts in all of its combinations in the same way, producing the same physiologic effects, which vary in accordance with its proportion. Hence, in speaking of the effects of the use of alcohol, all the members of this group that contain it are included.

Alcohol, when introduced into the stomach, causes a sense of warmth, which rapidly diffuses and is quickly followed by a general glow of the body. In moderate quantities, it increases the secretion of the gastric juice, and in that way assists the digestive power, stimulating the flow of blood, creating a superficial congestion of the mucous membrane, and soliciting a greater supply of the stomach-juices. Large quantities impair digestion by coagulating albumin. Taken in large quantities, alcohol precipitates the pepsin of the gastric juice and destroys its activity as a digestive agent. The habitual use of alcohol produces structural alterations in the stomach, seriously impairing the digestive power, so

that an abnormal quantity of mucus is secreted, and this acts as a ferment and keeps up a gastric catarrh, followed by pyrosis, regurgitation of food, heartburn, etc.

By its great power of diffusion, alcohol enters the blood directly from the stomach, without entering to any great extent the small intestine. The liver is consequently at once influenced by its presence in the portal vein. The functional activity of the hepatic cells is for the time being increased, and a more abundant glandular secretion follows. The first result of the overstimulation of the liver is an increase in size of the organ; but by over-work, the hepatic cells undergo atrophic changes and shrink. The liver becomes smaller, nodulated, and hardened; there results the condition known as cirrhosis or hobnailed liver.

In small doses, alcohol increases the action of the heart; in larger doses, excitement, exhilaration, and slight intoxication ensue; in still larger doses, it causes loss of muscular power, impaired coördination of voluntary movement, and rambling incoherence. In toxic doses, profound insensibility, stertorous breathing, and complete muscular resolution quickly follow. In small doses, all the functions are for the time being more energetically performed; but with the increased action of the agent, the functions of the system become disorderly and uncontrollable. In excessive quantities, the functions of the brain are suspended and complete unconsciousness ensues.

Alcohol has been discovered in the fluid contained in the ventricles, and has been distilled from the cerebral matter. As a result of the direct contact chiefly, but in part also from variations in the intra-cranial circulation, important structural changes are gradually wrought in the cerebral matter. The cells of the gray matter become more or less fatty and shrunken, the neuroglia undergoes hyperplasia, shrinking and condensation of the whole cerebrum ensue, and the cerebro-spinal fluid relatively increases. The objective evidences of these pathologic changes are seen in the impaired mental power, the muscular trembling, the shambling gait of the drunkard. These are a few of the many injurious effects of alcohol, to which may be added delirium tremens, hemianesthesia, epilepsy, paraplegia, amaurosis, etc.; and mental alienation, as asylum statistics show, has in the same agent its most influential cause.

A few well-known physiologic effects have been presented in this communication to show that the excessive use of alcohol is injurious. There are many addicted to the use of alcohol who say they desire to rid themselves of the appetite or disease. Alcoholism is, however, rather a result of habit than of disease, inherited or acquired; and the appetite for alcohol is wholly acquired. To be sure, its continual use will produce a diseased condition of the organization, structural and organic in character; but that derangement is not so much a disease known as alcoholism, as it is a direct destruction of tissues brought about by contact of the alcoholic poison with the organization for a continued length of time. The craving for the alcoholic excitation is not a disease, but a result of habit. This inordinate craving is what is commonly classed as a disease, the removal of which requires specific treatment. This habit is oftentimes induced by dyspeptic disorders, mental depression, or a sense of prostration incident to various diseases, and it is sometimes evidence of a constitutional idiosyncrasy. The power to resist it is impaired in proportion as the faculties of the mind are weakened by indulgence.

Alcoholism is a great curse, and any agent that will help to rid society of it is a good thing; but can any conscientious man, standing in the medical light of the nineteenth century, believe that Keeley, who holds his so-called cure a secret from medical men, and defies analysis, intelligently hopes to confer any real benefit upon humanity in his so-called gold-cure, or has any higher aim than the directing of the gold of the country into his own coffers?

There are few men who really desire to quit the habit of drinking; whose pleasure in drinking is not greater than their desire to reform. Any man, however, who really desires to quit the habit, and will make up his mind accordingly, can easily do so by exerting what little will alcohol has left him; by placing himself under the direct care of an intelligent physician, who will administer appropriate tonic treatment to support his system until it can depend upon the natural stimulation of good nutrition. He will then find himself just in the condition that Keeley or any other man need hope to leave his patient, who has his welfare at heart—only better off, not depending on any so-called cure, but with the knowledge of his condition before him, and knowing well that to falter is to fall.

This habit can only be overcome by sufficiently long total abstinence, together with measures directed to the removal of disorders and to the promotion of mental occupation and invigoration of the body and mind. There is no drug that has a special efficacy.

Respectfully, P. V. ELLIS, M.D.

GHENT, KY.

ATROPINE-POISONING AND THE "KEELEY CURE."

To the Editor of THE MEDICAL NEWS,

SIR: The following on criminal poisoning by atropine is from Blythe's *Poisons: Their Effects and Detection*, vol. ii, p. 341: "Criminal poisoning by atropine in any form is of excessive rarity in Europe and America, but in India it has been frightfully prevalent. . . . It was largely used by the Thugs, either for the purpose of stupefying their victim or for killing him; by loose wives to insure for a time the fatuity of their husbands; and, lastly, it seems in Indian history to have played the peculiar *rôle* of a State agent, and to have been used to induce the idiocy or insanity of persons of high rank whose mental integrity was considered dangerous by the despot in power. The Hindoos, by centuries of practice, have attained to such dexterity in the use of the 'datura' as to raise that kind of poisoning to an art, so that Dr. Cheevers, in his *Medical Jurisprudence for India*, declares that 'there appears to be no drug known in the present day which represents so close an approach to the system of slow poisoning believed by many to have been practised in the Middle Ages as does the datura.'"

Apropos of this is the report of an American physician, made to one of the medical journals within the past year,

that his son, as the result of an overdose of atropine, broke down mentally and physically, and died after an illness of about two years. He was rejected on application for a life insurance policy on the simple ground of the atropine-poisoning, and the examining physician adduced three other cases of atropine-poisoning in which the victims died in a few years.

These considerations would seem to throw a strong light on the cases of impaired health and lessened mental vigor of some of those who have gone through the so-called "Keeley cure." The physiologic action of the "cure" named is exactly in keeping with the idea that the active agent is atropine. After a few days' treatment the vision becomes blurred, the pupils dilated, the patient can no longer read ordinary print, and there is profound nervous depression.

The following quotation from Blythe may throw some light on the source from which Keeley drew his inspirations (*Poisons*, etc., vol. i, p. 10): "J. Baptista Porta, in his *Natural Magic*, published in 1589, gives a method *of drugging wine with belladonna root for the purpose of making the loaded guest loathe drink*."

There can be no doubt of the actual, though temporary, loathing often induced by the "Keeley cure," and as little doubt of its producing the physiologic action of atropine. In some who thereafter succeed in establishing a reasonable amount of will-power, the effect appears to give the requisite start in the right direction; I have consulted with men who had manifestly been rescued by this means from the drunkard's fate, and had maintained their self-control for years. There is reason to fear, however, that, with too many, the susceptible nervous organization that made them at first easy victims of the drink-habit compels them to succumb with equal readiness to the atropine—and the brain being more infirm after treatment than before, they lapse with increasing facility into drink, even if they escape the extreme mental disorder and the physical break-down of atropine.

The Keeley claim of 99 per cent. of permanent cures is doubtless based on the notorious habit of the drinker denying his vice; that a small percentage of recoveries occurs it is but candid to acknowledge. These occur, however, in those only in whom the natural mental power is vigorous, in whom the brain is little susceptible to the action of narcotics, and in whom a strong purpose of resistance can yet be aroused. For the majority of drunkards in whom the susceptibility to narcotics is very great, no permanent cure, or restoration of the will-power so as to control the appetite, can be expected.

If these conclusions are correct, it would appear that the reckless use of this most dangerous drug on a susceptible class of persons should make the administrator responsible for all the evil results, mental and physical, that follow. Were this agent used straightforwardly under its own name, the patient and his friends would be in a position to protect themselves against a poison so redoubtable; but, when used under a false name, it seems as if a cause would lie very strongly against the Keeley doctors, and especially against Dr. Keeley himself.

Respectfully yours,

JAMES LAW, F.R.C.V.S.

CORNELL UNIVERSITY, ITHACA, N. Y.

NEW ORLEANS.

Death of Dr. T. G. Richardson—The New Orleans Polyclinic.

PROF. TOBIAS GIBSON RICHARDSON died in this city on Thursday, May 26th, at the age of sixty-five. He had been in poor health for three years, but his last illness was very short. He was Dean of the Medical Department of Tulane University of Louisiana for twenty years, and one of its professors for thirty-one years. At the time of his death he was Emeritus Professor of Surgery. He was elected President of the American Medical Association in 1879, and was an honored member of the Orleans Parish and State Medical Societies. He was noted for his charity. The city of New Orleans has lost one of her most prominent and best citizens, and her physicians have lost an honored and enthusiastic friend. The Orleans Parish Medical Society attended the funeral in a body.

The New Orleans Polyclinic has applied to the State Legislature for equal privileges with Tulane University in the Charity Hospital.

INFLUENZA AND CHOREA.

To the Editor of THE MEDICAL NEWS,

SIR: I see in your issue of May 7th a report of a case of influenza followed by choreic movements in an old lady of sixty-five. My father and myself had a similar case in January of the present year, the lady being seventy-five. The movements were in the right upper extremity and head, and were at times quite violent, so much so as to cause great soreness of the muscles of the neck.

The movements lasted about three weeks and then gradually subsided, the old lady having an uninterrupted convalescence, with the exception of an attack of phlegmonous erysipelas involving the lower lip.

We treated this case throughout with quinine, phenacetin, and stimulants, using iron also during the attack of erysipelas. Inasmuch as the case reported died, I thought this case ending in recovery might be of interest.

Very truly, F. SALE, M.D.

BEDFORD, VA.

NEWS ITEMS.

The Mississippi Valley Medical Association will hold its eighteenth annual session at Cincinnati, October 12, 13 and 14, 1892. An address on Surgery will be delivered by Dr. Hunter McGuire, of Richmond, Va. An address on Medicine will be made by Dr. Hobart Amory Hare, of Philadelphia. The officers of the Pan-American Medical Congress will hold a conference at the same time and place.

BOOKS AND PAMPHLETS RECEIVED.

Disabilities of Old Soldiers. By John B. Crawford, M.D. Reprint, 1892.

Accidental Uretero-vaginal Fistula Following Hysterectomy. Cure by Kolpo-uretero Cystotomy, etc. By Nathan G. Bozeman, Ph.D., M.D. Reprint, 1892.

Special Bulletin of the Medical School and Law School of the University of Colorado.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, JULY 23, 1892. No. 4.

ORIGINAL ARTICLES.

TUBE-CASTS AND THEIR DIAGNOSTIC VALUE.[1]

BY I. N. DANFORTH, A.M., M.D.,

PROFESSOR OF CLINICAL MEDICINE, CHICAGO MEDICAL COLLEGE: PROFESSOR OF RENAL DISEASES IN WOMAN'S MEDICAL COLLEGE OF CHICAGO; PHYSICIAN TO ST. LUKE'S HOSPITAL, AND TO WESLEY HOSPITAL, CHICAGO.

THE study of renal tube-casts is not new. Since Henle, in 1842, first comprehended and announced their importance, their relation to renal diagnosis and pathology has been generally admitted.

The exhaustive essay of Bartels, in Ziemssen's *Cyclopedia*, is an excellent record of our knowledge of casts up to that time; but I think something more may now be added.

For some years past I have had occasion to study tube-casts frequently and consecutively for purposes of diagnosis, and, while doing so, have, insensibly perhaps, arrived at certain results and reached certain conclusions which it is my purpose to set forth in this paper. I do not claim any new discoveries, but hope my paper will add something of system and definiteness to the study of casts and something of certainty to the diagnostic conclusions to be drawn therefrom.

Concerning the origin of tube-casts, I think they are clearly of two distinct kinds, each having a different origin, and each indicative of a different pathologic process. First, we have the mucous or more properly mucin casts—and I do not think that casts of this variety have received the consideration to which their importance entitles them. Mucin casts, I would divide into two groups: (*a*) Simple mucin casts, without crystalline or cellular elements; (*b*) Casts that include saline or cellular elements acquired during their formation in the kidney. This division has an important bearing on diagnosis, as I shall endeavor to show presently.

Secondly, we have the true fibrinous casts, or those that have long been recognized and variously classified by different writers; and these may be divided into four groups: (*a*) The hyaline or "structureless" casts, which contain no formative elements whatever. (*b*) Blood-bearing casts; (*c*) Cell-bearing casts; (*d*) Fatty casts.

This classification may be reduced to tabular form, for purposes of systematic study, as follows:

CLASSIFICATION OF TUBE-CASTS.

Class I. Mucin Casts.
- (*a*) Simple mucin casts, entirely destitute of formative elements.
- (*b*) Mixed mucin casts, or those that include crystalline or cellular elements, acquired during their formation in the tube.

Class II. Fibrinous Casts.
- (*a*) Hyaline or structureless casts.
- (*b*) Blood-bearing casts.
- (*c*) Cell-bearing casts.
- (*d*) Fatty casts.

Of course, each group may be divided into subgroups, but such wire-drawn distinctions serve no good practical purpose, while they are likely to confuse and perplex the student.

Turning now to the first class, the *mucin cast*, let us consider its origin and pathologic import. It is certainly not the product of an exudate, and is therefore not directly derived from the bloodvessels. This fact separates it at once and forever, as regards origin and pathology, from the fibrinous cast, a point to which I shall allude again presently.

It is undoubtedly true that the mucin cast is formed within the renal tubules, and from material furnished by the tubal epithelium, most likely by the epithelium of the convoluted tubes. Under certain circumstances, the epithelial cells seem to undergo a change equivalent to the "mucoid degeneration" of Ziegler, the protoplasm of the cell being transformed into a mucoid substance, which is afterward cast into the lumen of the tubule, there to aggregate itself with the similar product of neighboring cells, thus forming the simple "mucin cast" or the long, wavy string of mucin so often seen in urine. The mucin cast is the product of a catarrhal nephritis, a pathologic state to be sharply differentiated from exudative nephritis, with relation to origin, treatment and results.

I have contended for more than ten years that "catarrhal nephritis" ought to have a distinct recognition in our systematic nosology, simply because it is a distinct disease, frequently existing for years and having its own characteristic symptoms and course. The simple mucin cast is the characteristic morphologic product of this disease and establishes its differential diagnosis. Frequently, it is the only reliable indication of the existence thereof, since catarrhal nephritis is not generally accompa-

[1] Read before the Association of American Physicians, Washington, May, 1892.

nied by subjective symptoms of any marked significance.

Together with the mucin cast are frequently found tubal epithelium, leukocytes, and urinary salts, but these have no necessary relation to the pathologic condition indicated by the mucin cast; it alone establishes the diagnosis of catarrhal nephritis.

The "mixed" mucin cast is the "simple" mucin cast plus whatever crystalline or cellular elements may chance to be present. Clinical experience shows that the elements most likely to be present are leukocytes, or crystals of lithic acid or calcium oxalate. The presence of the first indicates that there exists a catarrhal condition of sufficient intensity to induce rapid multiplication of the nuclei of the epithelium, which by reason of the "mucoid" degeneration of the protoplasm of these cells are set "free" and are hence easily enclosed in the mucin cast during its formation.

It may be said that these leukocytes escape from the blood by diapedesis, but if that were true we should have hyaline (fibrinous) casts, instead of mucin casts, since we cannot conceive of a hyperemia sufficient to produce diapedesis without at the same time inviting exudation.

Of course, if hyaline casts *are* present, exudation is proved, and the diagnosis of exudative inflammation is thereby established. It is not at all unlikely that hyaline and mucin casts may be present together, which would show that the case was in a transition state from catarrhal to exudative nephritis, or *vice versa*, as I have seen in many instances; and it is in just such cases as these that familiarity with the appearance of tube-casts, and their diagnostic pointings, is so necessary, since it is impossible to establish a refined diagnosis from any other standpoint.

When the mucin cast includes crystals of lithic acid, oxalates, or phosphates, it is clearly correct to assume that these crystals were deposited in the renal tubules and that they point to a diathetic condition which determined their formation.

From a diagnostic point of view, it is important to note that the crystals are *within* the cast and not adherent to its *surface;* because it clearly warrants the conclusion that they were formed in the renal tubule and not in the pelvis or bladder.

This being the case, we can readily account for the renal irritation that has led to the renal catarrh and consequent renal inadequacy, so common when these diathetic factors are present. The diagnostic value and the importance of recognizing these crystals and of determining their nature and location is thus clearly indicated.

In the year 1874 and again in 1879 and 1880 the late Dr. Mahomed drew attention to "high arterial tension" as a symptom prophetic of chronic interstitial nephritis, and described what he designated as the "pre-albuminuric stage" of chronic nephritis. His writings attracted wide and well-merited attention, but his untimely death occurred before he had completed his researches and experiments. It was his belief that high tension or irritable heart, with contracted and resistant bloodvessels, preceded albuminuria, sometimes for months or even years. It was his further belief that the approach of renal cirrhosis might be predicted by carefully estimating the degree and constancy of cardio-vascular tension, by means of consecutive sphygmographic tracings.

A broader study of this subject has developed the fact that this peculiar condition is not certainly present, except in cases of well-marked lithemia, and that even then, as Dr. Grainger Stewart has observed, some degree of cirrhosis usually precedes the symptom.

Increased or abnormal vascular tension, then, can hardly be regarded as a prophetic or prodromic symptom of renal cirrhosis, although its value as regards differential diagnosis cannot be denied.

I believe, however, that the presence of the mucin cast is of far greater diagnostic value than is high arterial tension under any circumstances.

In the first place, I am satisfied that the great, in fact, the overwhelming, majority of cases of interstitial nephritis are preceded by a long period of faulty digestion and mal-assimilation. This is certainly the case in the vicinity of Chicago, where my observations are chiefly made. This leads to overworked and irritated kidneys, as Dr. George Johnson first pointed out; but more than that, it leads to the development of renal catarrh, as Dr. Johnson did *not* point out.

Vitiated or abnormal urine produces a catarrhal irritation of the kidney, just as vitiated or abnormal ingesta produce a catarrhal irritation of the stomach. The next event is the appearance of the mucin cast long before any recognizable renal lesion occurs, and long before arterio-capillary tension is present in such degree as to be detected, except by the most expert and experienced sphygmographist. In fact, arterio-capillary tension, as a practical every-day symptom for the guidance of the ordinary practitioner, does not yet possess the value that Mahomed, as well as Gull and Sutton, predicted for it. Its recognition presupposes the possession of instruments and technical knowledge not generally possessed by those most likely to encounter the cases to which they are applicable. Moreover, as I have already said, the symptom in question does not usually precede the lesion of which it is an indication. Again, vascular tension does nothing more than suggest a possible diathetic antecedent; whereas it is all-important, if such a complication be present,

that it be promptly recognized and appropiately treated.

I claim for the mucin cast a position of preëminent importance in the early diagnosis of interstitial nephritis; more than this, I claim that the appearance of the mucin cast is a prophecy of that change which is only too sure to follow chronic catarrhal nephritis.

Moreover, the cause or "diathesis" that preceded and led to the catarrhal kidney may generally be detected by the microscopic study of the urinary sediment that falls with the casts, and as this "diathesis" includes or rather *is* the essential pathologic factor in a given case, its early recognition is most important. All this can be done, has been done, is daily being done, by him who is most concerned in all our researches and experiments, namely, the general practitioner. What seems to me a consideration of no small importance is the fact that the recognition of the mucin cast and the crystals or granules of lithic acid are not matters of opinion or guess-work, or questions of comparative judgment, but simply questions of fact and of fact only; these substances are or are not present, and the conclusion is obvious. The degree of arterio-vascular tension in a given case is, however, a matter of comparative judgment at best, and in every case is a very variable factor, present to-day and absent to-morrow.

It is proper, although perhaps needless, to add that the foregoing statements are based on a long and cumulative experience, upon long and careful study of many cases, some of which are still under observation, and are in no proper sense theoretic or conjectural.

I will now ask your attention briefly to the second class, namely, the true *fibrinous casts*. The presence of the fibrinous cast in urine is abundant proof that sufficient hyperemia exists, or has existed, in the kidney to produce exudation of the fibrin factors, and most probably diapedesis. It is proof, therefore, of the presence of "exudative" inflammation, instead of "catarrhal" inflammation, which I have just considered. I regard it as very essential that this distinction be kept in mind, since it has much to do with the question of treatment, and is all-important in its relation to prognosis. In both forms of disease albumin may be present—present at one time, and absent at another. In the early stage of exudative (interstitial) nephritis, the quantity may be so small as to require very careful testing to prove its presence. In catarrhal nephritis the amount is always very slight, many times amounting to no more than a trace. As a diagnostic symptom, therefore, albuminuria has very little value, and no uniform value. Tube-casts, however, have a positive as well as uniform diagnostic value, provided their interpretation is understood. One of the most important points settled by them is the question whether, in a given case, we are dealing with catarrhal or exudative inflammation.

The *hyaline cast*—the first variety of the second class—is the simplest and most innocent form produced by exudative nephritis. It is so small and so translucent that it frequently escapes detection, unless the examination happens to be made by an expert microscopist. Its diagnostic value depends mainly upon its frequency and upon its form or symmetry. If only an occasional hyaline cast is found it goes to show that exudation is very slight; that it is in its incipiency, or has well-nigh ceased—a question that can easily be decided by reference to other symptoms that do not come within the scope of this paper. If many are present, exudation is still going on actively. In my own examinations I lay great stress upon the form of the cast. If it is smooth and symmetrical, or free from "twists" or distortions, it seems to me to indicate that it was formed in a tube not yet disturbed by the encroachment of pathologic connective tissue; but if the cast is not smooth and regular on its surface, and if it shows angularities, as though it had been violently bent or twisted, I am equally confident that the cirrhotic process has already made considerable progress. I regard this a very important diagnostic indication, and one that has helped me very greatly in seeking grounds upon which to found a reasonable prognosis. It will save repetition if I say now and here, that the same observations with reference to symmetry and form apply in equal degree to the varieties of casts that are yet to be mentioned.

Blood-bearing casts indicate a hyperemia sufficient to cause hemorrhage into the renal tubles, although it may be very slight indeed. Hence, blood casts are commonly regarded as proof of acute nephritis, and of that only. In every such case, however, it should be borne in mind that while the blood cast may be the immediate result of an acute lesion, a long-standing chronic lesion may have preceded it, and careful search for other forms of casts should be made. In other words, a prognosis founded upon blood casts alone is quite likely to disappoint the expectations of physician and patient. In every case of apparent acute nephritis careful search should be made for casts indicative of pre-existing chronic disease, and it is not wise to prognosticate favorably until several consecutive examinations have failed to disclose the presence of the casts of chronic nephritis. I have rarely encountered cases of so-called "idiopathic" acute nephritis that were not preceded by undoubted chronic nephritis.

Cell-bearing casts, the "epithelial casts" of authors, are so common, and are generally so well

understood, that little need be said about them, except to emphasize some two or three points. Care should be taken to determine whether the cells adhere to the surface of the cast or are incorporated therein. In the former case they may not be the result of pathologic exuviation, but they may represent only cells wasted by wear and tear, whose escape has been anticipated slightly by the friction of the cast as it passes down the tubule. In the latter case they must have fallen off from purely pathologic causes. The shape or form of cell-casts is as significant as that of hyaline casts. Casts from a cirrhotic kidney are likely to be twisted and distorted; casts from a case of tubal nephritis are likely to be straight, symmetrical, and rather large. In either case the cells may be cloudy, granular, or filled with glistening droplets of fat, thus indicating with great precision the stage or condition of the case under examination, as the more advanced the process of fatty degeneration of the cells the more advanced the destruction of the kidney in which they were produced.

Fatty casts are evidence of the completion of the destructive process of which the hyaline cast marks the beginning. They are more or less numerous as the case is more or less advanced in its ultimate pathologic history. They are more or less eroded and irregular as the tubule is more or less denuded of its epithelial lining, and otherwise roughened in its lumen. They are more or less twisted and distorted as the tubule is more or less pulled out of shape and symmetery by the encroachments and contractions of the pathologic connective tissue. Thus they indicate the stage as well as the form or type of the disease of which they are the product. With fatty casts may be mingled hyaline and epithelial casts; in fact, the three forms are frequently found together. The stage of the disease in a given case would be pretty accurately indicated by the predominating type of casts; but it would be evident that some minor portion of one or both kidneys was either more or less advanced in the pathologic change than the chief portion of these organs.

I have not regarded the *waxy* or *amyloid* cast as entitled to a separate grouping, because it is only an accidental variety of fibrinous cast, presenting no inherent peculiarities of structure, and therefore indicating no pathologic changes in the kidney that are associated with its presence. Waxy casts are almost invariably hyaline or structureless; if they happen to contain the peculiar waxy or amyloid material implied by their name the iodine test will promptly demonstrate the fact, and thus establish the diagnosis of waxy kidney; but clinical experience shows that the amyloid disease can seldom be differentiated in this manner. In conclusion, permit me to add that I have long been persuaded that the course of a given case of acute or chronic nephritis, the type of the disease, the sequence and nature of the pathologic events taking place in the kidney, and the grounds for a reasonably positive prognosis, may be evolved from an intelligent and careful consecutive study of the tube-casts alone. Other factors of course enter into the diagnosis, and their value and importance I do not question, but I believe, with Formad, of Philadelphia, that the tube-cast conveys more actual and accurate information to the practiced microscopist than any or all other symptoms or signs.

ASEPSIS AND ANTISEPSIS AS APPLIED IN THE LYING-IN CHAMBER.[1]

BY WILLIAM WARREN POTTER, M D.,
OF BUFFALO, N. Y.

THE subject that forms the title of this paper has been frequently discussed in societies and medical journals during the past ten years, but definite and fixed rules of action have not been formulated or agreed upon; at least, there has been no unanimity in the profession as to when these methods should be adopted, how far they should be carried on, and when they should cease. It will be my object in the following paragraphs to briefly set forth my own views thereon, and I invite the most searching criticism from the members.

Prior to the introduction of antisepsis, with reference to the practice of surgery, by Lister, we may say that practically nothing had been done to eliminate septic influences from the parturient chamber. The practice of surgery has been almost revolutionized by the teachings of Lister, even though surgeons to-day do not adhere in any considerable number to the precepts that Lister originally laid down; nay, more, even Lister himself has departed from many of his original dicta. It remains, however, and ever will remain a fact, that no man has done more to improve methods and to bring success to the surgical art than this great modern apostle of surgical cleanliness. No sooner had the benefits of his teachings been tested in surgical cases than obstetricians began the application of similar methods in the lying-in chamber. It is easy to understand how advocates of new methods of procedure may readily become extremists, and hence cause harmfulness by their zeal; so, very soon we found the application of antiseptic methods in the lying-in chamber combated by very eminent men.

However much men may disagree as to the necessity for the employment of a particular agent, or as

[1] Read at the Forty-third Annual Meeting of the American Medical Association, in Detroit, June, 1892, and at the Semi-annual Meeting of the Medical Society of the County of Erie, June 14, 1892.

to the methods of its application, all must admit that it would be better if every parturient woman could be made absolutely clean, and all septic germ-influences excluded from the puerperal chamber. How best to approximate, if not to attain, this ideal is a problem that confronts every obstetrician to-day.

Here are a few simple propositions about which there can be, or at least ought to be, no dispute: 1. Let us begin by making the patient as nearly clean as it is possible for soap and water to accomplish. 2. Let her, prior to the beginning of labor, have an immersion-bath daily for several days, and with the first manifestations of pains let her abdomen and genitalia be rendered absolutely aseptic by the further application of germicides in solution, adequate to accomplish the desired end. 3. Let her have a warm vaginal douche, rendered aseptic. 4. Let the lower bowel be thoroughly evacuated by copious lavements of hot water prior to the vaginal bath. 5. Let her bedding be made as pure and clean as careful laundrying can make it. 6. Let her clothing be made equally clean in like manner. 7. Let there be a number of clean bichloride napkins placed in readiness for use. If all of these injunctions are rigidly enforced we have done much to lay the foundation for a physiologic labor.

After all this careful preparation of the patient and her surroundings we have not, however, done enough. The physician and all the attendants must be rendered as scrupulously clean and aseptic as the patient herself, else all the previous preparation has been in vain. The nurse must be a woman of absolute cleanliness, both in the care of her person and her clothing, and she must be especially trained in the habit of keeping her hands clean. The physician must be trained in all the details of aseptic and antiseptic principles, and must enforce his rules as rigidly upon himself as he does upon his patient and her nurse. He must not approach the genitalia with soiled fingers or with unclean apparel. Let him make his primary examination as carefully and as deliberately as possible, to ascertain as to the relations of the woman and the fetus, and then let him refrain from further examination until some special reason arises to make its repetition necessary or imperative. Any repetition of the examination must be practised with the same carefulness that was insisted upon the first time, and so on to the end. If these simple rules are carried out in a normal labor it would seem as though every avenue for the entrance of pathogenic germs had been guarded. After delivery all lesions of the genital tract should be sutured, and a toilet made of the genitalia under the supervision of the physician himself. These are some of the simplest rules that can be named with reference to the care of a case of labor, and who dare say that they should not be rigidly enforced?

My friend, who has an active practice in a rural district, will say that it is not possible to carry out even these simple rules and do justice to his other work that is pressing on all sides. My answer is, let him approximate thereunto as nearly as may be, and decline all obstetric service where a disposition exists on the part of the patient and her friends to ignore such careful directions as may be given them. I know a physician who absolutely declines to take an obstetric case unless he can have at least one or two months' supervision of the patient prior to labor. He will not accept a chance-call to such a case unless it be to relieve a brother practitioner who requests it. If all men would adopt such a rule we would soon find no difficulty in enforcing discipline in the parturient chamber, as well as in making adequate and ample preparations for the ordeal.

In spite, however, of all these precautions, and in their exercise with seemingly rigid care, septic fever will sometimes occur, and then we are often called upon to exercise the highest and most difficult part of our functions. Then comes the test of judgment and the demand for skill. With the temperature running gradually upward on the fourth or fifth day to 103° plus, and with a fetid discharge from the genital tract, can there be any reasonable doubt about the propriety of at once making efforts to render the uterus and vagina perfectly sweet and clean by the employment of intrauterine lavements? It would seem to me as illogical to neglect such a procedure as it would be to fail to remove the dressings and clean out the pus from a fetid surgical wound. Unless this intrauterine toilet be performed with great care, however, there is danger that it will fall short of accomplishing all that may confidently be expected of it when adequately and properly applied.

The latter proposition, namely, the method of performance of the intrauterine toilet, it seems to me is a question of grave importance. It is a delicate task—one that must be performed with the utmost precision and neatness, or else it had better not be done at all. In other words, it must be done with the same exactitude that any surgical procedure entails; let it be done by properly placing the woman on a table in the proper light, with a suitable gravity douche, containing sterilized water, within easy reach, and with all other careful preparations that would obtain in the performance of an intrapelvic or abdominal operation. This has been amply set forth by Dr. Lewis S. McMurtry, in a recent paper[1] and need not be further elaborated here. We often hear it said that even with the careful and judicious employmennt of the intrauterine lavement in the manner indicated it cannot overtake the germs that have infected

[1] Trans. Amer. Assoc. Obst. and Gyn., vol. iv, 1891.

or have been absorbed, and that, therefore, it will not accomplish the purpose sought. In my judgment, this is a specious attempt at reasoning. It may be true that the lavement cannot overtake such pathogenic germs as have already found entrance in the organism, but it can sweep out all colonies that remain unabsorbed, and thus cut off the septic supply. With the further absorption of these germs prevented, the patient will generally go on to easy cure, the exception being only in cases in which the method has been resorted to inadequately or after too much mischief has already been done. We are constantly told by the practitioner in the country that it is impossible to adopt all this precision and exactitude in the exigencies of daily practice. While it must be conceded that there is some truth in this statement, yet I confess that it seems to me an admission of weakness, of which to purge ourselves we must not hasten slowly. If a method is useful or necessary in the saving of health or life, no labor is too great and no caution is too exacting that will put it into process of execution or application. In this brief paper it has been my object to make a plea for greater exactitude on the part of the general practitioner in the employment of both asepsis and antisepsis in the practice of obstetrics.

We have all seen what can be done in the management of large maternities by the application of these principles. A distinguished member of this section has already, in a large maternity, obtained the unprecedentedly large percentage of over a thousand consecutive obstetric confinements without a death. This would have been impossible under the management in vogue twenty years ago. If it is competent to obtain such results in a building in which no other class of patients is received, it would seem to be quite reasonable to anticipate a like degree of perfection in the rural districts, where fresh air and good water are always at hand. What we require is a little more energy, a little more ambition, a little more determination to avail ourselves of the methods at easy command, to make the disease heretofore known as childbed fever one of the past opprobria of obstetric medicine.

To recapitulate, then, let me insist that the elementary precepts of the practice of modern midwifery entail the amplification of three or four principles. The first is that the parturient woman, whether of high or low degree, must be made absolutely clean in her person and surroundings; her room must be clean; her bed must be clean; and everything used during confinement must be free from taint or odor. This law must be insisted upon, even though the environment of the woman denies her luxuries—often even the bare necessities—of the lying-in chamber; but the great God of heaven has not denied her the luxury of fresh air and clean water.

The second principle involved applies with clearly cogent force to the *personnel* of the accoucheur, who must render himself clean with soap and water, supplemented by the free use of a nailbrush and a germicide solution. He must make no physical exploration of the genital tract until he is absolutely certain that he can carry no poison to his patient by such examination. The third principle involved is that the child should receive immediate attention as soon as it is born, so that there may be no danger of sepsis invading its eyes or other exposed parts. Ophthalmia neonatorum must be entirely blotted out, as it can be, provided due care is observed in relation to the management of the new-born. The fourth application of this principle applies to the nurse or other attendants upon the parturient woman. It, perhaps, requires more skill and tact to properly train a nurse to be absolutely clean in her work than it does to enforce the principle in all its other bearings. No nurse can be adequately so trained unless the trainer is himself scrupulously clean and expert with reference to all questions pertaining to the subject in hand.

These are a few practical thoughts that have come to mind, and have been hastily converted into language, without previous opportunity to elaborate the subject in such a manner as it deserves; but if this imperfect presentation of it will lead to a discussion that will be productive of some good its purpose will have been fully served.

If it should be remarked that I have said less of antisepsis than of asepsis, it is because I am of the opinion that the latter is of the greater importance, and, further, because I believe that if asepsis is adequately and amply practised there will be little necessity for the use of antiseptics in and about the parturient woman. My formula then would be: A rigid employment of asepsis prior to delivery, and an equally rigid employment of antisepsis subsequent to delivery, *provided*, there arise symptoms that render the latter necessary. If a rigid use of aseptic measures be made during the latter days of pregnancy, and during delivery, there will be little occasion, in a normal labor, to employ antisepsis afterward. Abnormal labors are outside of all rules, and each one must be managed according to its own necessities, not only with reference to essential details, but with reference to the minute and technical administration of antiseptic measures. For instance, in a normal labor there will be no occasion for the employment of vaginal lavements for forty-eight hours subsequently to delivery; whereas, in an abnormal labor it may not only be necessary to employ the vaginal douche immediately, but prompt intrauterine irrigation may be absolutely essential.

As a final thought, permit me to observe that with greater care given by the general practitioner in the remote portions of the country and away from the large centers, as well as in the populous cities, it is it is my opinion that so-called puerperal fever may be eliminated as a factor of constant menace in the parturient chamber, and that ophthalmia neonatorum may be absolutely and entirely prevented.

The mortality from pulmonary tuberculosis in a single year, in this country, is declared to be, in round numbers, 100,000. I have no doubt that if statistics could be collated on the subject it would be found that the mortality from childbed is considerably beyond that number; and, further, that a very large proportion of this mortality comes within the line of prevention.

284 FRANKLIN STREET.

VISCERAL PHLEBOTOMY.[1]

BY GEORGE HARLEY, M.D., F.R.S.,
OF LONDON, ENG.,
CORRESPONDING MEMBER OF THE ROYAL ACADEMY OF SCIENCES OF BAVARIA; OF THE ROYAL ACADEMY OF SCIENCES OF MADRID; VICE-PRESIDENT OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON, ETC.

Pari passu with the recent advances made in scientific physiology and pathology have most marked changes and improvements taken place in the medical and surgical treatment of disease. Some of these have appeared startling by reason of their novelty; others have intimidated on account of their seeming temerity; many have been stigmatized as chimerical, while not a few have been actually condemned as being beyond the pale of rational therapeutics. Nevertheless, on better acquaintance, most of these have been found to be as replete with wisdom as they have proved to be pregnant with advantage to the healing art. Visceral phlebotomy, of which I am about to speak, may not untruthfully be said to belong to the latter class, for when it was first introduced by me to the profession in 1886,[2] in the form of hepatic phlebotomy, it was not only abused as a most dangerous, but stigmatized as a most unjustifiable operative procedure. Nevertheless, although only six years have glided away since its death-knell was so vociferously sounded, instead of having been consigned to an oblivious tomb, it is not only still alive and flourishing, but it has added to it a twin sister in the shape of pulmonary phlebotomy, by Dr. Christian Simpson; and now I am about to advocate the extension of this mode of curative procedure to every other accessible visceral organ of the body.

[1] Read in the Section of Surgery and Anatomy of the American Medical Association, at Detroit, June 9, 1892.

[2] "Hepatic Phlebotomy," Brit. Med. Journ., November 18; ibid., January 15, 1887.

Thinking that no simpler or more effective plan of proving either the safety of, or the benefits to be derived from any novel system of treatment can be adduced than by quoting successful illustrative cases, I will not waste time in exposition, but at once briefly narrate two most successful examples, which can neither be gainsaid nor doubted; and, in order to save space, and yet to put it in the power of those specially interested in the subject to obtain possession of the details in each case, I will cite cases that have elsewhere been published *in extenso*, the one by myself,[1] the other by my son, Dr. Vaughan Harley:

CASE I.—The patient, a lady of intemperate habits, aged thirty-eight, was not operated upon until she was supposed to be in a dying state, from the combined effects of a greatly enlarged, hard, and inflamed liver, complicated with ascites and marked anasarca. After Dr. Dunbar Walker (whose patient she was) had rendered her insensible with the A. C. E.[2] mixture I pierced the upper part of the liver from right to left with an eight-inch long trocar, of the diameter of between Nos. 2 and 3 English catheter. The normal liver being at least ten inches broad in an average-sized woman, and this liver being greatly enlarged—several inches both laterally and perpendicularly—I felt perfectly safe in thrusting the eight-inch trocar up to its very hilt. This was done with the hope that during its penetration it might wound one or more blood-vessels of sufficient caliber to yield a free stream of blood. On withdrawing the end of the canula about an inch or two, blood issued freely, and twenty ounces were abstracted. The skin-wound was then closed with a piece of sticking-plaster, and a bandage applied.

Such was the benefit derived from the operation that from the very next day the downward progress of the case was arrested. The liver decreased in size, and with the aid of tapping, the ascites and anasarca disappeared, and within three months the patient was so well and strong that she could walk a distance of three miles, and she never had a return of the disease.

CASE II is one of an entirely different character, cited with a view of showing, equally forcibly, the value of hepatic phlebotomy in a case of enlarged and inflamed liver—the seat of strumous abscesses.

The patient was a country lad, aged seventeen, whom I was called to see by Dr. Cooper Key and Surgeon Heaven. The liver dulness extended from the right nipple-level down to two inches below the umbilicus, and four to the left of the median line. Phlebotomy was performed while the patient was

[1] Brit. Med. Journ., November 13, 1886.

[2] This is a safer form of anesthetic than chloroform, consisting of one part of absolute alcohol, two parts of chloroform, and three parts of sulphuric ether, proposed by me, and recommended by the committee "On the uses and effects of Chloroform," appointed by the Royal Medico-Chirurgical Society of London, of which I was a member. See the *Transactions* of 1864, p. 341.

under the influence of the A. C. E. mixture; but although the liver was punctured in several places, such was the hardness and compactness of its tissues (on account of the inflammation) that only a very little blood was obtained. Fortunately, however, profuse hemorrhage took place some hours afterward[1] from the wounded liver, through the bile-ducts into the intestines, with the result that within thirty-six hours the liver had diminished in size no less than an inch and a half all round, which made an enormous diminution, and within six days the first abscess had pointed and been emptied. In three days more a second abscess was likewise emptied, and on the thirty-eighth day the patient returned to his home in Lincolnshire, a distance of 120 miles, without a single bad symptom.

The results of these two cases must, I think, convince even the most skeptical, not only of the safety of this operative mode of procedure, but of its utility as a curative agent, for, without it, I have not the slightest hesitation in saying that both of the patients who were subjected to it would have been in their graves within a few days.

I now come to pulmonary phlebotomy, first proposed and practised by Dr. Christian Simpson.[2] This I consider to be the most difficult form of visceral phlebotomy. From the fact that the lungs are contained between the ribs, and constantly contracting and expanding, it is impossible by the application of an external bandage to bring the thoracic parietes into firm contact with the orifice of the wound made in pulmonary tissues so as to effectually close it. Consequently, the closure of the wound in the lung, after the operation, must be effected by the resilience of the pulmonary tissues being sufficient to retain a blood-clot in the channel made by the trocar. In order to favor this, Dr. Simpson adopted the following plan: "After the withdrawal of twelve ounces of blood the canula was held *in situ* with the finger over the end, to allow a clot forming, and then it was slowly withdrawn. . . . The patient was immediately and markedly relieved, both as regards the cerebral (she had been comatose, G. H.) and pulmonary conditions. No effusion took place; there was only trifling hemoptysis, and a suspicion of a small patch of pleurisy, without a rise of temperature." Dr. Simpson employed aspirating needles in his operations, and although they did not prove like mine, successful, this can scarcely be said to have been due to any fault in the operation, but to the diseases complicating the pulmonary congestion for which the phlebotomy was had recourse to, two of the cases being complicated with advanced organic heart-disease, and the other two being cases of equally incurable Bright's disease.

Having thus shown that the apparently heroic method of extracting blood directly from an inflamed internal organ can not only be practised with safety on a favorably-placed gland like the liver, but on one of the most unfavorably-placed organs of the body for the successful performance of the operation, namely, the ever-moving lungs, I think I need scarely dread censure if I boldly recommend the performance of visceral phlebotomy on every suitably-situated internal organ (when it is in a seriously congested condition) in preference to the application of leeches or cupping-glasses to the external parietes over it, seeing that the cutaneous blood-vessels have in no case whatever any direct communication with the internal organs lying beneath them. Consequently, the theory of doing good is but a delusion, and the practice of leeching and cupping but a snare, if done with the intention of directly diminishing the amount of blood circulating through or stagnating in a visceral organ. As the withdrawal of blood from the cutaneous capillaries can only act beneficially in such cases, in so far as it diminishes the entire amount of blood in the body, and seeing that the largest of the internal organs forms but a small proportion of the whole frame, the diminution in its blood-supply can be but an insignificant one; whereas, by my proposed method, as shown in the case of the liver from which twenty ounces of blood were directly withdrawn, and Dr. Simpson's of the lung, in which twelve ounces of blood were equally directly extracted from the organ, as much or as little blood can be removed from the congested parts as the operator thinks needful.

Within the last few days I proposed extracting blood from a tender, greatly enlarged, and inflamed spleen, but was thwarted by the nervous apprehensions of an imperfectly educated coadjutor, from his not knowing that even needles as large as No. 3 catheters can be not only thrust into but can be kept for twenty minutes in the ventricles of the heart of living dogs with perfect impunity. It is knowledge that inspires surgical confidence, and without it no one ought to attempt visceral phlebotomy. For those about to have recourse to it as a curative measure for the first time the following hints may, perhaps, be of service:

1. If it be deemed advisable to render the patient insensible, induce anesthesia of the skin at the point selected for puncture, by the local application of cocaine hydrochlorate.

2. Select the seat of puncture, and give such a direction to the trocar as will insure the point of its entrance into the organ being brought into direct contact with the parietes by the application of

[1] This case was reported in full by my son, Dr. Vaughan Harley, in his paper "On Abscess of the Liver," Brit. Med. Journ., November 23, 1889.

[2] "A New Method of Bleeding in Some Forms of Pulmonary Congestion, with Four Cases."—*Lancet*, November 1, 1890.

pressure to them by a bandage after the completion of the operation, in order that the mouth of the wound in the organ may be thereby readily and effectually closed.

3. Let the trocar or aspirating needles be of the size of a No. 2 or 3 catheter, and sufficiently long to penetrate deeply into the organ operated on, without there being any risk of entirely transfixing it.

4. Let the direction of the instrument be such as to avoid its puncturing any large bloodvessel.

5. When all these points have been attended to it will save the patient pain if the instrument be rapidly and at once thrust into the organ to the full depth it is intended to puncture.

6. If no blood flows, then slowly and by distinct degrees withdraw the canula, in the hope that a sufficiency of blood will ooze from the transfixed capillaries into the canal made in the organ by the instrument, as will yield a free stream, and enough for the required purpose.

7. When the wished-for amount of blood has been obtained, before withdrawing the canula altogether from the organ, but just before it leaves it, in order to obtain a blood-clot-cork to stop up the wound with, place the finger on the mouth of the canula, and keep it there until a clot has had time to form, both in its interior and in the canal made in the organ itself by the instrument.

8. The next point is to get the clot in the canula to break off from that in the canal, so as to leave the latter behind, in order that by its presence there it may prevent any oozing of the blood from the organ after the withdrawal of the instrument. This is best done, I think, by giving a slight twist to the canula at the moment it is felt to leave the organ. And the resilience of the tissues of the organ will cause them to contract sufficiently firmly round the clot within it to prevent its being drawn out along with the canula.

9. All that now remains to be done is to place an inch-sized square piece of adhesive plaster over the seat of the external puncture, and bind a pad over it, with a long flannel bandage sufficiently firm, so as to ensure the internal surface of the parietes being brought into close contact with the orifice of the wound in the organ, the more effectually to prevent the possibility of accidental internal hemorrhage taking place.

All I have to add is that, if I am not very much mistaken, the day is not far distant when the old-fashioned, erroneous, as well as unsatisfactory, mode of withdrawing blood cutaneously will be totally abolished in all cases of inflammation and congestion of internal organs having no circulating connection with the skin, and that the practice of visceral phlebotomy will become the recognized orthodox method of depletion in such cases.

PULMONARY TUBERCULOSIS: ITS DIETETIC AND REGIMINAL MANAGEMENT.[1]

BY EDWARD F. WELLS, M.D.,
OF CHICAGO.

PULMONARY tuberculosis, the greatest enemy of mankind, is not an incurable disease. However, if the unfortunate subject of this affection is to be given an opportunity to escape the fate of the majority, he must be surrounded by the most favorable conditions, and must submit to certain necessary rules and regulations. I deem it an essential preliminary to success that there should be a happy combination of interests and hopes upon the part of both patient and physician. The patient should be candidly informed of the nature of his malady, of its varied and tedious course, of its leading symptoms and complications, of its dangerous character, of the possibility of cure, and of the necessity of exercising to the utmost his powers of patience, hope, and confidence. On the other hand, the physician should have a wide and exact knowledge of medicine in general and of tuberculosis in particular; he must know and believe that the disease is amenable to treatment; he must be kind, considerate, resourceful, hopeful, truthful, and enthusiastic, and, above all other qualities, he must be possessed of the ability to transfer his convictions, hopefulness, and enthusiasm to his patient. That implicit confidence of the patient in his medical attendant may be obtained and retained, week after week, month after month, and year after year, until at last the victory is won, or defeat has been suffered only after every point has been stubbornly contested, requires a profound knowledge of human nature and the highest qualities of the physician.

One of the most striking features of pulmonary tuberculosis is the progressive loss of body-weight. In the presence of advancing local affection, this is so constant as to afford a very accurate index of the progress of the case. Experience has abundantly proved that in a great many cases it is possible to stay the waste of tissues, and even to cause the patient to gain in weight by giving careful attention to diet, and that under these circumstances the pulmonary trouble is held in abeyance and the local lesions have a tendency to heal. This being the case, it is evident that the subject of feeding tuberculous patients is one of prime importance, and worthy of the most careful consideration.

Anorexia and defective powers of assimilation are present in those cases in which the stomach and intestines, including their adnexa, are affected by organic disease. Loss of appetite is also a prominent feature in many cases during the height of a febrile

[1] Presented to the Section of Practice of Medicine of the American Medical Association at Detroit, June, 1892.

attack, and, in a certain proportion of patients, without any obvious cause. However, the rule is, especially in the earlier part of the attack, that the patient has either a good appetite, with moderate capabilities of assimilation, or he can receive, digest, and assimilate liberal quantities of food, although he may have no desire for it—there being a state of apathy, rather than one of disinclination. It is in this last and largest class that we are able to utilize our knowledge of dietetics to the greatest advantage, and that this paper may not be unduly extended, my remarks will be confined, in the main, to this class of cases.

Foods that contain nourishment in the most concentrated form should constitute the basis of dietetic management. In order, however, that the best results may be obtained, these must be accompanied by properly selected adjuvants, correctives, and—padding. By the last term I mean certain bulky articles of diet that have but little nutritive value, but are necessary for the greatest digestive and assimilative activity.

For many years I have discussed this subject very freely with my patients, inquiring into their preferences and sensations, and obtaining their opinions and estimates, and the following diet-table is the result of my experience. In practice it is suitably modified to meet the surroundings and other exigencies of the individual case for which it is prescribed.

MENU.

On Rising, 6 A.M.

Hot Milk and Vichy. Hot Meat-broth.
Tea, made with Milk.

Breakfast, 7 A.M.

Rare Steak or Loin-chops. Mutton-chops, with Fat.
Bacon or Ham, with Fat.
Eggs.
Potatoes. Saratoga Chips. Fried Mush.
Toast, with Cream or Butter.
Oatmeal, Wheaten Grits or Rice, with Cream.
Fruit.
Coffee or Cocoa, made with Rich Milk.

Lunch, 10 A.M.

Milk. Eggnog. Meat-broth.
Stale Bread. Crackers. Zwieback.

Dinner, 12.30 P.M.

Beef, Mutton, or Chicken-broth. Oyster or Turtle-soup.
Raw Oysters. Fish. Raw Clams.
Poultry. Roast Beef or Mutton. Game.
Potatoes. Beans. Green Peas. Asparagus. Spinach.
Tomatoes. Celery. Pickles. Lettuce. Cauliflower.
Stale Bread. Graham Bread. Corn Bread.
Fruits, with Cream.
Custards. Pie. Cakes.
Milk. Milk Coffee.

Lunch, 3.30 P.M.

Milk. Koumyss. Clabber.
Ham or Tongue Sandwich.

Supper, 6.30 P.M.

Thick Meat or Fish Soup.
Cold Meats. Meat Salads.
Stale Bread. Crackers. Graham Bread.
Meat Jellies. Neufchatel or Cottage Cheese. Fruit Jellies.
Fruit. Cakes. Ice-cream.
Milk Coffee. Eggnog. Milk Tea.

Lunch, 9.30 P.M.

Hot Milk. Clam Bouillon. Beef Tea.

To this list may be added such other foods and drinks as the appetite craves and that are found to agree. Any article of diet that the experience of the patient has shown to be detrimental is to be omitted.

Food should be taken in as large quantity as possible. At each lunch from a half-pint to a pint of liquids should be ingested, and at each of the three principal meals an equal quantity of milk, or of coffee, tea, or cocoa, made with rich milk and cream, should be taken.

There is no objection to changing the dinner hour to 6.30 P.M., and taking a mid-day luncheon equivalent to the supper, as prescribed. Meals should never be hurriedly taken, and they should be always accompanied by cheerful conversation. Eating should be made one of the principal objects of the patient's life.

The diet should be varied to meet special indications or the patient's desires. If there is little or no fever, and if starch, sugar, and fats are well borne, foods containing these principles in abundance should be freely employed. If there is much fever, or if there is apathy or antipathy to eating, the diet should be composed mainly of animal foods and very concentrated nourishment, with fresh fruits and vegetables.

If there is a tendency to flatulent distention of the stomach or bowels after eating, bread and other farinaceous articles of food should be taken sparingly. If the bowels become constipated, fruits, coarse vegetables, corn or Graham bread should be largely eaten; and if diarrhea supervenes, food of this kind should be avoided.

At the very beginning of treatment the patient should be impressed with the great importance of certain hygienic and regiminal regulations. These should be fully discussed with him, and he should be made to understand the reasonableness of the rules prescribed, in order that his hearty and intelligent coöperation may be secured. The peculiarities of the patient must be fully weighed, but the following points I consider with every patient.

Tuberculous patients are usually persons that have formed strong attachments to home, family, and friends, and do not readily adapt themselves to changed surroundings. For this reason, home is the best place for the vast majority of them. This statement does not apply to the comparatively small

contingent of tuberculous patients that are always in touch with their surroundings and who are natural travellers. With these, travel, change of scene, and climatic treatment may be considered, but a change of residence should not be undertaken without thoughtful consideration and the special advice of the medical attendant.

The residence should be exposed to sunshine and be sheltered from raw and cold winds. The rooms should be well ventilated, free from draughts, and comfortably warmed and furnished. The home should be entertaining, pleasant, and cheerful. The patient should sleep alone.

Pleasurable exercise, such as riding, boating, walking, travelling, games, etc., and non-exhausting, useful employment that interests and does not expose to deleterious influences are beneficial.

At frequent intervals the patient should practise forced breathing—both inspiration and expiration. As a measure of the aërial capacity of the lungs he should count aloud as many times as possible without taking breath.

The clothing should be light and comfortable. That next the skin should be of wool and of fine texture. In cold weather, the clothing should be sufficient to prevent chilliness, and the chest should have extra protection.

Once or twice weekly the patient should have a hot sponge or tub bath. The surface should be quickly dried, rubbed to a glow, and enveloped in warm woollen garments. The bath-room should be comfortably heated.

Should night-sweating supervene, the surface should be bathed with very hot water or vinegar, and after being dried should be rubbed with flour, starch, or other absorbent powder.

Twice a day there should be applied to the surface of the chest a stimulating liniment, composed of equal parts of turpentine and oil of hyoscyamus, or oil of sassafras. Mustard plasters and hot applications may be employed for the relief of local pains. These failing to give relief, small blisters may be used.

The cough should be restrained as much as possible, and endeavors to expectorate should be made with every effort. A dry, irritable cough, without expectoration, should be held in check by proper remedies.

The sputa should be received in a cup containing a quantity of moist absorbent and antiseptic material. The contents should be removed once or twice daily, and the cup cleansed. Moist antiseptic cloths may be substituted for the cup. The cloths and contents of the cup should be burned.

Catarrhal colds should be avoided by every known means, and if they occur they should be treated with the utmost care, and the treatment be continued until the disappearance of every trace of catarrh. The patient should consult his physician at once upon the appearance of new symptoms the significance of which may be unknown to him.

The patient should observe and record carefully, upon suitable blanks, his condition from day to day. Such records afford information of the greatest value in formulating prognoses and lines of treatment. He should bring them with him when he consults his physician. "With careful instruction an intelligent patient may become," to a limited extent, "his own observer, and to a certain extent, his own medical attendant," and to his advantage.

163 STATE STREET.

CLINICAL MEMORANDA.

A CASE OF PUERPERAL MANIA.[1]

BY LLEWELLYN ELIOT, MD.,
OF WASHINGTON, D. C.

THE terms "puerperal insanity," "puerperal mania," and "melancholia of lactation" are misnomers; "insanitas in puerpero," "mania in puerpero," and "melancholia ex lactatio" are the terms that should be substituted, since they do not differ clinically from insanity, mania, and melancholia as usually observed; the puerperal state simply precipitates them, either through heredity or mental worry before confinement; or untimely suppression of the lochial discharge or excessive lactation after delivery. More cases of melancholia than of mania are met with in practice. Asthenia favors melancholia.

Without entering into the discussion of the pathology or treatment of mania in puerpero I will submit the history of a case, the notes of which were furnished me by Dr. A. Behrend, of this city, with whom I was associated in the case from the night of the delivery.

I have not been able to find clinical reports of fatal cases of mania in puerpero, and for that reason desire to put the following history on record, hoping to see, in the future, reports of cases both successfully and unsuccessfully treated, so that rational conclusions may be formed upon the subject. Successfully treated cases only are reported, but they throw no light upon prognosis.

Mrs. X., white, thirty-one years old, of good physical development, was delivered of her sixth child on the morning of June 7th.

In her previous confinements, three male children, shoulder-presentations, were born still; one female child was born alive by version; of the fifth pregnancy no history was obtained. Each confinement was attended with hemorrhage, uterine inertia, and fever.

There was a history of hereditary predisposition to insanity on her maternal side, one aunt being at the time of this confinement an inmate of an insane asylum.

On June 2d, Mrs. X. experienced the false pains of labor, and became very apprehensive and despondent as to the termination of her gestation.

On the afternoon of June 5th, after a severe fit of

[1] Presented to the Section of Obstetrics and Diseases of Women of the American Medical Association, at Detroit, June, 1892.

coughing, the membranes ruptured and the waters were discharged; she experienced no pains; dilatation of the os was hardly perceptible; the uterus was high; no certain diagnosis of the presentation was made. Five grains of quinine sulphate were given twice daily, to stimulate the uterus to action.

On June 6th, the patient was very nervous; the uterus was somewhat lower; there were slight pains. A diagnosis of left shoulder presentation was made. During the day the pains became stronger and the patient more nervous. At twelve o'clock at night the os was well dilated, the shoulder presenting, the patient restless and tossing. Version was determined upon. It was at this time that my connection with the case began. At 1.30 an anesthetic was administered; version was performed, and delivery was completed in about half an hour. The child, a male, was born with a knot in the placental extremity of the funis; the heart-pulsations were weak; it could not be resuscitated. Hour-glass contraction followed delivery. The hand was introduced and the placenta extracted; hemorrhage was not profuse; shock was slight. A dram of the fluid extract of ergot and a fourth of a grain of morphine sulphate were administered. During the administration of the anesthetic the woman became almost unmanageable. As soon as the delivery was completed, she evinced symptoms of religious mania, but became quiet under the morphine given.

On June 7th, at 10 A.M., the temperature was 98.6°; the pulse, 90. The woman had rested well; the discharges were moderate; urine had been passed; there was no abdominal tenderness. A light diet was directed.

On June 8th, at 10 A.M., the temperature was 100°; the pulse, 98. There was slight abdominal pain and severe pain in the left thigh. Turpentine was applied to the abdomen and flaxseed poultices to the thigh; belladonna, morphine, and quinine were given every two hours, and the light diet continued.

On June 9th, at 10 A.M., the temperature was 100.5°; the pulse, 106. There was no pain, but much sweating, without chill; the bowels were moved with a saline; quinine sulphate, gr. v, was given every three hours; the lochia were suppressed.

On June 11th, at 10 A.M., the temperature was 100.5°; the pulse, 100. There was slight rambling and irrational action. At 1 P.M. the woman became maniacal, jumping from the bed and attempting to reach the front window. She was with difficulty restrained. The temperature was 100.5°; the pulse, 100. Chloral hydrate and potassium of bromide, each gr. xv, were given every three hours. At 8 P.M. the patient had not slept; she passed urine and feces in bed. Chloral and bromide were continued.

On June 12th, at 11 A.M., the temperature was 100°; the pulse, 110. The mania continued; the bowels were opened with calomel, soda and rhubarb; chloral and bromide were continued. At 8 P.M. the temperature was 100.4°; the pulse was not noted. The condition continued unchanged.

On June 13th, at 9.10 A.M., the temperature was 100.6°; the pulse, 110. The patient presented delirium of an hysterical type; there was no tenderness over the abdomen, but considerable tympanites; the lochia had ceased; feces and urine were discharged involuntarily in bed: turpentine stupes were applied to the abdomen. At 8 P.M. the temperature was 99.8°; the pulse, 100. The condition was unchanged.

On June 14th, at 10.30 A.M., the temperature was 100.6°; the pulse, 110. There was no abdominal tenderness; the tympanites had diminished; there was a slight discharge of blood from the uterus, having no odor; the mania continued; elixir of ammonium valerianate and potassium bromide were ordered. At 1.30 P.M. the temperature was 101.8°; the pulse, 120. The condition remained unchanged. At 9 P.M. the temperature was 99.8°; the pulse, 100. The patient urinated very frequently, but in small quantity.

On June 15th, at 11 A.M., the temperature was 100.5°; the pulse, 110. The tympanites was diminishing; the mania was constant. At 9 P.M. the temperature was 98.6°; the pulse, 110. The condition was not changed; the treatment was continued. The patient refused nourishment.

On June 16th we were unable to take the temperature or the pulse during the entire day on account of the mania. The medicines were continued; nourishment was refused. At 9 P.M. morphine sulphate, gr. ¼, and atropia sulphate, gr. $\frac{1}{100}$, were given hypodermatically; the patient slept until 4 o'clock A.M.

On June 17th, at 10 A.M., the temperature was 104°; the pulse, 119. The mania was constant; the medicines were continued; the patient refused all nourishment. At 10 P.M. the temperature was not taken. The mania was furious. Morphine sulphate, gr. ⅓, was given hypodermatically. The woman slept until midnight, when there was a sudden explosion (physometra), with a great rush of water, followed by a slight, bloody discharge. The abdomen became perfectly flat, the delirium more intense, and nourishment was refused. This physometra explained entirely the cause of the tympanites, showing a continued condition of inertia of the uterus, which appeared at the beginning of labor, and was not owing to any septic condition.

On June 18th, at 10 A.M., the temperature was 104°; the pulse, 120. There was no abdominal tenderness; the patient took nourishment; she rambled constantly, but was more controllable; she took nourishment; the lochial discharge continued; bromide and valerian and quinine sulphate, gr. x, were given. At 1 P.M. the temperature was 103°; the pulse, 116. The quinine was repeated. At 3 P.M. the temperature was 101°; the pulse, 110. Quinine was repeated. At 10 P.M. the temperature was 101; the pulse, 100. The woman was now resting quietly.

On June 19th, at 2 A.M., the temperature was 103°; the pulse, 110. Nourishment was refused. At 7 A.M. the temperature was 104.2°; the pulse, 124. Milk and quinine sulphate were given per rectum. At 11 A.M. the temperature was 103.4°; the pulse, 110. There was entire apathy to everything; asafetida and quinine were given by suppository every two hours; there was inability to swallow; an almost incredible amount of urine was removed with the catheter; no albumin was found. At 10 P.M. the temperature was 104.8°; the pulse, 130. An ice-bag was applied to the head; the urine was removed by catheter; the patient was sponged with alcohol; the pupils reacted to light; nourishment was refused; the lochial flow continued moderate; hyoscyamine, gr. $\frac{1}{100}$, was administered.

On June 20th, at 2 A.M., the temperature was 102°; the pulse, 120. The woman's condition was unchanged. At 11 A.M. the temperature was 104°; the pulse, 126. At 2 P.M. the temperature was 104°; the pulse, 130. Salol and bismuth subnitrate were given for diarrhea; a little nourishment was taken; milk-punch was given every two hours. At 10 P.M. the ice-bag had been continued throughout the day at intervals; the patient took notice and answered questions intelligently.

On June 21st, at 10 A.M., the temperature was 102°; the pulse, 120. The woman's condition was improved; she took nourishment; she rambled at intervals. At 8 P.M. she suddenly collapsed and could not be revived, and died at 9 P.M. of exhaustion.

No autopsy was allowed.

1106 P STREET N. W., JUNE 3, 1892.

VOMITING INDUCED BY AN ELONGATED UVULA; OPERATION; RELIEF.

BY EDWARD F. PARKER, M.D.,
DEMONSTRATOR OF ANATOMY, MEDICAL COLLEGE OF SOUTH CAROLINA, CHARLESTON, S. C.

VOMITING, as a symptom of some disturbance of the digestive canal, is so commonly associated with disease or functional derangement of the stomach and intestines, that we are likely to overlook the fact that the upper part of the alimentary tract is sometimes responsible for the difficulty. A common division of the causes of vomiting is into local, central, and reflex. In the pharynx and surrounding parts, from their exposed position and anatomic relations, we frequently find the origin and explanation of this last class.

Quite recently a case presented itself exemplifying this fact, and while impressing upon me the old medical axiom that to treat disease successfully we must find its cause and remove it, at the same time it illustrated the truth that seemingly grave conditions may arise from trifling causes, which if not discovered and removed, render all treatment useless and ineffectual.

The pharynx and adjacent parts can always be easily and quickly examined, and such examination should be made, so that we may consider or eliminate them as factors in all disturbances that may possibly originate there. In justification of these remarks the following case is interesting and instructive.

During the month of March, 1892, F. G., twenty-one years old, consulted me for nausea and persistent vomiting. His face wore an anxious expression, though he was apparently in good health. The nausea had been annoying him for some time, but the vomiting had only commenced two weeks before. He was scarcely able to retain anything on his stomach. His health had previously been excellent. Medication had failed to give him any relief. I was struck by the man's face.

A month or so previously, in examining the throat of a patient, I found an elongated uvula. I advised an operation and appointed an hour for the next day. The patient was alarmed at the idea of any cutting, and did not return. Now, though this patient did not complain of any symptoms referable to his throat, I thought I recognized in him my former renegade. This identity, however, he denied; but curiously enough, on examining the throat, an extremely long uvula was found, resting on the base of the tongue and exciting retching with every attempt to swallow. The uvula was unusually elongated and tapering in shape, though not equal in length to one described by Morell Mackenzie, that was so long that it was inhaled into the larynx and produced symptoms of suffocation.

Under cocaine anesthesia a piece more than an inch in length was removed, and the next morning the patient returned relieved.

The terms excision and amputation as applied to this operation seem to me to be inappropriate and misleading, as they imply removal of the organ *in toto*, while uvulatome and uvulotomy accurately express the instrument and the operation.

Elongation of the uvula, though more frequently the result of a chronic inflammatory condition of the pharynx and naso-pharynx, which by causing constant hawking and coughing leads to lengthening of the organ and relaxation of the soft palate, may also be congenital.

In the majority of cases our attention is called to the throat by a tickling, irritating sensation, as if a foreign body was present; nausea and vomiting are not so common as symptoms of this condition.

The patient was a good singer and his voice was materially improved by the operation.

It is in the light of a practical lesson, rather than as an unusual or curious incident, that I think this case worthy of report, in that it teaches the necessity of making a thorough examination in every case that comes for treatment, and warns against any routine in prescribing drugs for symptoms that may owe their origin to many different causes.

70 HASELL STREET.

BACKWARD DISLOCATION OF THE HEAD OF THE RADIUS.

BY ALBERT C. BARNES, A.B., M.D.,
RESIDENT PHYSICIAN TO THE POLYCLINIC HOSPITAL, PHILADELPHIA.

BACKWARD dislocation of the head of the radius is a very rare occurrence, Markoe, quoted by Agnew, having been able to collect records of but twenty-eight cases. The following presented so many characteristic symptoms as to make the correctness of the diagnosis indisputable:

W. C., six years old, fell with considerable force, and in an effort to protect his trunk from injury suddenly threw out his right arm, so that the violence came directly in contact with the palm of his hand, while his arm was in an extended and extremely pronated position—a similar history, it will be observed, to that of most cases of "Colles's fracture." Ten minutes after the accident the boy was brought into the hospital, and presented the following deformity: His arm, in a position of almost complete pronation, was flexed at an angle of about 120°; his hand was also somewhat flexed and fixed. An examination of his elbow-joint, the normal contour of which was but slightly disturbed, revealed behind the external condyle a hard, resisting mass, to which a distinct rotary movement could be communicated by force applied to the distal extremity of the radius. To prove that this mass was the displaced head of the radius, we searched in the position in which the head of the radius normally lies, and detected there a

slight depression corresponding with the position of the sigmoid fossa. Careful and repeated manipulation failed to elicit crepitus—thus excluding fracture of the internal condyle—a complication that frequently exists in conjunction with backward dislocation of the radius. Attempts at flexion, extension, pronation, and supination were attended with excruciating pain—a fact that would seem to indicate laceration of the capsular ligament. The treatment was very simple. The patient being etherized, counter-extension was applied to the arm, with extension of the forearm and direct pressure on the dislocated head of the bone. The latter readily slipped into its normal position. The joint was then enveloped in gauze saturated with lead-water and laudanum, an anterior extreme obtuse-angled splint applied, and the arm dressed in supination. Subsequent daily dressings show that the bone is still in position. The result thus far indicates perfect recovery, with preservation of the integrity of motion.

MEDICAL PROGRESS.

A Successful Laryngectomy.—At a meeting of the Philadelphia County Medical Society, J. SOLIS-COHEN presented a patient, forty-four years old, from whom he had removed the larynx and the first ring of the trachea. Nineteen years previously the man had presented symptoms of laryngeal obstruction and a large papilloma was removed piecemeal by intra-laryngeal procedures. For ten years there was no indication of recurrence. Then the previous symptoms returned, and various modes of treatment were employed. For a year the symptoms had been aggravated. A growth occupied a large portion of the left side of the larynx, almost occluding its lumen. It had penetrated the walls of the larynx and projected externally. Precautionary tracheotomy was performed, and three or four weeks later a portion of the growth was removed by intra-laryngeal procedures. The external growth was subsequently excised, the larynx split, and all the internal growth removed. The case did well for four weeks, when recurrence took place, the neoplasm growing rapidly. Radical operation was now proposed and acquiesced in. The entire larynx and the first ring of the trachea were removed. The esophagus was left as nearly intact as possible. The patient made an uninterrupted recovery.

Suppurative Otitis Media in Consequence of a Carious Tooth.—SCHWARTZ (*Zeitschr. für Ohrenheilk.*, 1892, xxii, 2, p. 121) has reported the case of a man, twenty-one years old, who complained of pain in the ear, with a purulent discharge. There was some swelling of the bony portion of the auditory canal. The employment of the Eustachian catheter was attended with bleeding from the nose. Examination of the nasal cavity disclosed the presence of the carious root of the second molar tooth on the left side of the upper jaw and a fistula traversing the hard palate. The tooth was removed and the fistula closed. Evidences of inflammation of the mastoid process, however, became prominent, and it became necessary to operate. When the mastoid process was opened, granulations and pus were found. These were removed and suitable dressings applied. There were no further complications, and the case progressed to perfect recovery.

The Reflexes in Spinal Injuries.—From an analysis of twenty-nine cases of injuries to the cervical and dorsal regions of the spinal cord under his observation, THORBURN (*Medical Chronicle*, 1892, xvi, 2, p. 73) concludes that in total transverse lesions of the spinal cord both the superficial and the deep reflexes below the functional level of the injury are permanently and entirely abolished, while in partial lesions the reflexes are retained, perhaps exaggerated. It is thought that the abolition of the reflexes is dependent upon isolation of the spinal centers from their cerebral connections. It is further concluded that shock is not the cause of the early loss of the reflexes in spinal injuries. If the lesion causes complete paralysis and anesthesia, the deep reflexes are always lost. If motility or sensibility, or both, return, the reflexes likewise return. The rectum and bladder participate in the derangement of the reflexes.

Cachexia Strumipriva, with Paralysis of the Right Vocal Band.—NATIER (*Rev. de Laryngol., d' Otol., et de Rhinol.*, 1892, No. 12, p. 422) has reported the case of a man, twenty-nine years old, in which thyroidectomy had been performed for the removal of a goiter. The man appeared to be puffed, the eyes fixed and small, the cheeks relaxed, and the face expressionless. The skin was dry and colorless; the hairs were likewise dry and brittle, and had lost their luster. The pulse was small and slow. There was increased emotional mobility. On laryngoscopic examination the right vocal band was found immobile and in the median position, while the movements of the left band were paretic.

A Vegetable Substitute for Decalcified Bone Plates.—BARACZ (*Centralbl. für Chirurgie*, 1892, No. 23, p. 481) proposes the employment of plates obtained from vegetables as a substitute for decalcified bone plates in the various anastomotic operations upon the digestive canal. By experiments upon animals he has found that plates prepared from Spanish turnips answer the purpose admirably. Such plates have the advantages of being elastic, mobile, and absorbable. The suggestion has found practical application in a case in which gastroënterostomy became necessary by reason of the existence of inoperable carcinoma of the pylorus and stomach.

Double Optic Neuritis Following Influenza.—SNELL (*Brit. Med. Journal*, No. 1642, p. 1308) has reported the cases of two females, nineteen and thirteen and a half years old, respectively, in each of which failure of vision was noticed a few weeks after an attack of influenza. In the elder girl the neuritis had nearly passed off. When she first came under observation the optic discs were atrophied, and there was no perception of light. The younger patient was seen three weeks after vision began to fail; the neuritis was then well marked. The inflammation had subsided, but the discs were atrophic, and there had been but little improvement in sight.

The Urine in Epilepsy.—At the recent French Surgical Congress GILLES DE LA TOURETTE (*La Médecine Moderne*, 1892, No. 18, p. 284) announced that the differentiation of focal epilepsy of hysterical origin from focal

epilepsy of organic origin could be made by examination of the urine. Observation has shown that after a paroxysm of epilepsy of organic origin the proportions of fixed residue, of urea and of phosphates, are increased beyond the normal, while after an attack of epilepsy of hysterical origin these proportions are diminished below normal.

The Treatment of Leg-Ulcers. — At a meeting of the Philadelphia County Medical Society T. S. K. MORTON recommended the following treatment of leg-ulcers: The surroundings are thoroughly cleansed with soap, brush, and water, and, if necessary, shaved. Then a douche of simple water is applied, followed by one of sublimate solution (1 : 1000), if the ulcer is foul, inflamed, or otherwise contaminated. Next, a spray of hydrogen dioxide (15-volume solution) is employed. When active effervescence has ceased, the surface is gently irrigated with simple water. The ulcerated area is then covered with strips of protective. A dressing of gauze or butter-cloth wrung out of sublimate solution is next applied; over this the bandage, without reverses. The treatment should be repeated daily, or on alternate days, until the wound presents a healthy appearance, and then with diminishing frequency.

Hydrocephalus of Syphilitic Origin.—HELLER (*Deutsche medicin. Wochenschr.*, 1892, No. 26, p. 608) has collected from the literature sixteen cases of hydrocephalus, in which a history of syphilis could be definitely traced, and adds a case under his own observation. He, therefore, issues the injunction that, in every case of hereditary syphilis the possibility of the development of hydrocephalus should be borne in mind, and that, in every case of hydrocephalus, a history of hereditary syphilis should be inquired for. If a diagnosis of hereditary syphilis is at all probable, energetic antisyphilitic treatment is at once to be instituted.

The Pathogenesis of Eclampsia.—From a careful study of two fatal cases of eclampsia GERDES (*Deutsche medicin. Wochenschr.*, 1892, No. 26, p. 603) arrives at the conclusion that the disease is dependent upon the activity of a specific bacillus, infection occurring by way of the uterus, probably in consequence of an endometritis antedating conception. Convulsions occurring during parturition, dependent upon eclampsia, present distinctive pathologic features. Anatomically, eclampsia is a well-defined and well-characterized disease. The profound organic changes found in cases of eclampsia cannot be fully explained by the mere presence of a bacillus. They probably result, directly or indirectly, in consequence of the action of a toxine.

Epilepsy Cured by Replacement of an Anteflexed Uterus.—SNYDER (*The Physician and Surgeon*, July, 1892, p. 305) reports the case of a girl, nineteen years old, who had had nocturnal epileptic attacks for six years, with dysmenorrhea, setting in shortly after the beginning of menstruation. Examination disclosed the existence of pronounced anteflexion of the uterus and a small cervical canal. After dilatation and straightening of the cervical canal, menstruation became normal and the attacks did not again occur.

Sarcoma of the Buttock Treated by Ligature of the Internal Iliac Artery.—At a meeting of the Clinical Society of London, TREVES (*Lancet*, 1892, 3588, p. 1244) reported the case of a lad, eighteen years old, who presented a sarcoma of the buttock of at least three months' duration, for the relief of which the internal iliac artery was ligated by the intra-peritoneal method. Remarkable shrinking of the growth took place, and the lameness and intense pain that had been present disappeared. The patient remained able to walk for ten months after the operation, but died at the expiration of fourteen months.

Intra-urethral Chancre.—BERG (*Monatshefte für prakt. Dermatologie*, 1892, XV, 1, p. 14) has reported the case of a man with gonorrhea, in which, a discharge persisting, examination disclosed the presence, within the urethra about an inch from the meatus, of a chancre. The accuracy of the diagnosis was confirmed by the development of secondary manifestations, which yielded to the employment of mercurial inunctions.

Immunity to Tetanus. — BRIEGER and EHRLICH (*Deutsche medicin. Wochenschr.*, 1892, No. 18, p. 393) have experimentally demonstrated that the milk of animals rendered immune to tetanus contains substances capable of conferring immunity.

TIZZONI and CATTANI (*Deutsche medicin. Wochenschr.*, 1892, No. 18, p. 394) have found that immunity to tetanus exists in the offspring of rabbits and rats that have been rendered immune to tetanus.

The Saliva and Pathogenic Micro-organisms.—A study of the saliva by SANARELLI (*Centralbl. f. Bakt.*, 1892, No. 25) has demonstrated that the saliva is an unfavorable medium for many pathogenic microörganisms. The bacillus of diphtheria may survive for some time, but finally succumbs. The saliva is an excellent medium for the diplococcus pneumoniæ, which grows rapidly, but loses its virulence.—*Monats. f. prakt. Derm.*, 1892, No. 11, p. 483.

The Influence of Antirabic Inoculation upon Epilepsy.—Two epileptic children, bitten by rabid dogs, were treated at the Pasteur Institute at Paris by antirabic inoculations. Not only did rabies not develop, but the epileptic seizures subsequently failed to appear. A similar procedure was adopted in the case of a two-year-old child with extensive cicatrices of the face from burns received two years previously. Two attacks occurred in the course of the treatment, but none afterward.—*Wiener medicin. Presse*, 1892, No. 24.

Recurrent Cerebral Tumor, with Two Operations.—ERB (*Wiener medicinische Presse*, 1892, No. 24, p. 980) has reported the case of a man, forty-seven years old, who presented symptoms of a tumor of the right central convolutions, for which he was operated on, and the growth, a glio-sarcoma, removed. Eight months later the symptoms had returned, and a second operation was performed. The growth was found larger than before. The result was not quite as satisfactory as after the first operation.

Chorea Nephritis. — THOMAS (*Wiener medicinische Presse*, 1892, No. 24, p. 980) has reported the case of a

boy, fourteen years old, with chorea, who likewise presented febrile symptoms, while the urine contained albumin and tube-casts. There was also some edema of the lower extremities. In the course of several days the albumin disappeared from the urine and the choreic movements ceased.

THERAPEUTIC NOTES.

Specific Treatment of Pneumonia.—NEISSER (*Deutsche medicin. Wochenschr.*, 1892, No. 25, p. 593) has reported three cases of pneumonia treated by means of injections of blood-serum. The first patient was seen on the third day of his illness. The lower lobe of the left lung was infiltrated and the sputum contained virulent diplobacilli. An injection of 130 c.cm. of serum obtained from a pneumonic patient two days after the crisis had occurred was made into a vein of the arm. The temperature at once began to decline, the pulse to diminish in frequency, copious perspiration occurred, and convalescence was uninterrupted. The second patient was seen on the fourth day and presented infiltration of the left lung posteriorly. An injection of 70 c.cm. of serum, obtained from the first patient two days after the crisis, was given. Defervescence soon set in. A week later, a pleural effusion was detected and relieved by puncture. Fifty c.cm. of the fluid thus obtained was used for injection in a patient, who in the course of an attack of influenza was seized with a chill, whose sputum contained virulent diplo-bacilli and who presented other phenomena of pneumonia. The temperature at once subsided, perspiration set in, and improvement manifested itself. The temperature remained above normal and a slight pleural effusion formed, but recovery rapidly ensued.

Chlorphenol is the name given to a volatile combination of chlorine and carbolic acid, which has been employed by Passerini by inhalation in the treatment of tuberculosis, bronchitis, and laryngitis. A bit of absorbent cotton is held before the mouth, and drop after drop of chlorphenol is added. At first, fifteen drops are given. The dose is gradually increased by two or three drops at each inhalation until thirty drops or more are taken at a time. The inhalations ought not be continued for longer than five minutes at a time, and should be repeated at least four times a day, an hour before or two hours after meals.—*Journal de Médecine*, No. 25, p. 301.

Phenocoll Hydrochloride.—From a clinical study, BUMM (*Wiener medizin. Presse*, 1892, Nos. 21 and 22) concludes that phenocoll hydrochloride is an active and almost certain antipyretic in tuberculosis in doses as small as seven and a half grains. In the debilitated and in the last stages of the disease, however, the administration of the drug is to be abstained from. In erysipelas the antipyretic effect is slighter and less constant. The action is greatest at the acme of the fever, or with a falling temperature. The decline of temperature occurs usually two or three hours after administration of the remedy, and is often accompanied by profuse perspiration. The drug proved ineffective as an anti-rheumatic. As an anti-neuralgic it acted well in doses of seven and a half grains in migraine. It failed in myelitis and sciatica. Unpleasant secondary manifestations on the part of the intestinal tract and the heart were exceptional.

Arsenic in Leukemia.—At a meeting of the Clinical Society of London, DREW (*Lancet*, 1892, No. 3588, p. 1244) presented a case of leukemia in a man, in which, in the course of three months of treatment with liquor arsenicalis in gradually increasing doses up to one hundred minims daily, the greatly enlarged spleen became much reduced in size, while the proportion of colorless blood-corpuscles diminished from 1 : 14 red to 1 : 400. The number of red corpuscles was increased, but the proportion of hemoglobin underwent but little change.

Syphilotherapy.—DARZENS (*Rev. de Laryngol., d' Otol. et de Rhinol.*, 1892, No. 13, p. 457) has reported a case of tertiary syphilis that had resisted ordinary measures, but which yielded to the following combination:

℞.—Potassii iodidi
Ammonii iodidi } . . āā ʒij.
Sodii iodidi
Hydrarg. iodidi rubri . . gr j.
Aquæ . . . . . gr. xij.—M.

S.—Two tablespoonfuls daily.

The beneficial action of this combination is ascribed to the fact that the ammonium and sodium salts of iodine are more soluble than the potassium salt, in consequence of which the first two are rapidly eliminated, while the last is the longer retained. It is suggested that an analogous explanation applies to the utility of the mixed bromides in the treatment of epilepsy.

For Exophthalmic Goiter.—

℞.—Pulv. ipecac. . . . . gr. ss.
Pulv. digital. fol. . . . gr. ⅓.
Ext. opii. . . . . gr. $\frac{1}{10}$.—M.
Ft. pil.

S.—From four to six in twenty-four hours.

DIEULAFOY, *Journal de Méd. de Paris, No. 25.*

For the Incontinence of Urine of Children.—

℞.—Tinct. belladonnæ } . . āā f ʒv.
Tinct. cubebæ }
Tinct. nucis vomicæ } . āā f ʒijss.
Tinct. rhus aromaticæ }
Tinct. cascarillæ . . . f ʒiv.—M.

S.—Ten drops at bedtime and during the night for a child of from seven to ten.

Journal de Méd. de Paris, No. 24.

For Tinea Versicolor.—

℞.—Acid. salicylic. . . . . gr. xv.
Sulphuris precip. . . . ʒj.
Lanolin } . . . . āā ʒiijss.
Vaselin. }
M. et ft. ung.

S.—Apply topically. HARTZELL.

Thiol is recommended for constipation. A pill of a grain and a half is given daily for ten days.

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SATURDAY, JULY 23, 1892.

PULMONARY TUBERCULOSIS.

As of such vital importance do we view any additions to our knowledge of pulmonary tuberculosis that, at the risk of proving tiresome, we present herewith a summary of a study of 1000 cases made by R. W. PHILIP (*Edinburgh Medical Journal*, May, 1892, p. 998). Coming from so reliable a source, questions of diagnosis and of observation are not to be raised, and the report must be received as a valuable contribution to the literature of the subject.

The association of pulmonary tuberculosis with insufficiency of fresh air and exercise, with confinement in badly-ventilated and over-heated apartments, with the inhalation of dust, with exposure to irregular fluctuations in temperature, with frequent childbearing and prolonged lactation, was well marked.

The larger number of cases occurred in males—63.7 per cent. As a rule, females came under observation at a later stage of the disease than did males, and the process pursued a more rapid course in the former than in the latter.

The liability to the disease seemed equally great in the married and the unmarried, although a larger number of married (374) than of unmarried (263) males suffered. The latter difference is to be explained by the fact that most of the cases were in working-people, who marry early, as a rule.

Frequent pregnancy and prolonged lactation appeared to be partly responsible for 6.5 per cent. of all the cases in females, and for 18 per cent. of those in married women. In women, amenorrhea was common, while there was a tendency to aggravation of the general symptoms at the menstrual period, hemoptysis especially being common at that time.

The largest number of cases occurred between twenty-five and thirty-five years of age. In males, the maximum was between thirty-five and forty; in females, under thirty. After thirty or thirty-five in the female, and after forty in the male, the chronic type of disease prevailed.

A comparison of the heights of 500 male adults presenting well-marked pulmonary tuberculosis with the heights of 500 male adults presenting various other affections, revealed a close correspondence. In both groups, the greatest number of cases were found in those five feet six inches in height.

The questions of heredity and contagion were studied with great care. In 23.3 per cent. of cases a definite family history of tuberculosis could be traced; in 5 per cent. more, some doubt existed; in 70 per cent. the family history was good, so far as tuberculosis was concerned. "It seems . . . that we may safely limit the influence of heredity . . . to the production in the tissues of a susceptibility to, or at least a diminished power of resisting the tubercle-bacillus." On rigid scrutiny 6.7 per cent. of the cases could be traced to contagion.

In the vast proportion of cases the tuberculous process began at an apex. In 2.3 per cent. only was it exclusively or especially basal. In 40 per cent. the left, and in 34.3 per cent. the right lung was affected alone or in greater degree, while in 25.7 per cent. both seemed equally affected.

In 40 per cent. of cases the patients could assign no cause for their illness; in 12.8 per cent. the disease was attributed to chill; in 12.4 per cent. to bronchitis. In 5.6 per cent. of cases a history of exposure to inhalations of dust was obtained. In 8.2 per cent. of cases the illness was dated from a previous pleurisy. In 8 per cent., patients attributed the commencement of their illness to hemoptysis. In only 5 per cent. was a close sequence of tuberculosis upon croupous pneumonia ascertainable. Of

the cases below fifteen years of age, 30.5 per cent. had a history of recent measles. In 4.4 per cent. the onset of the disease was distinctly traced to an attack of influenza.

In 1 per cent. there was evidence of concurrent syphilis, and in less than 1 per cent. more a likely history of syphilitic infection. In 1 per cent. there was a history of acute rheumatism; manifestations of subacute and chronic forms of rheumatism were not infrequent. In 7 per cent. there was a history of malarial fever. In one case only was diabetes a precedent condition. Alcoholism was clearly traceable in 1.4 per cent. In 10.5 per cent. laryngeal complications were present; in a further 6 per cent. they were suspected.

Mitral valvular incompetency was present in seven cases; mitral obstruction in three cases; mitral incompetency and regurgitation in six; and pulmonary obstruction in four. Only 1.2 per cent. presented glandular involvement; less than 1 per cent., osseous or articular involvement; and less than 1 per cent., cutaneous involvement; 1 per cent. (all males) suffered from *fistula in ano*.

In an analysis of the results of treatment, 469 cases were considered. These were under observation for not less than six months, and the greater number for a longer time. In 117 cases (24.94 per cent.), there was continuous improvement in symptoms, physical signs, and general conditions for a period of not less than six months, a gain of more than five pounds having been maintained. In 163 cases (34.75 per cent.), the improvement was less decided. In 113 cases (24.1 per cent.), the results were indifferent, the patients ultimately growing worse. Seventy-six cases (16.2 per cent.) did badly, progressing to a fatal termination.

While the conclusions arrived at from the foregoing study are largely in accord with those of other observers, some additional light is thrown upon a subject no phase of which can be considered unimportant. Several points, however, deserve special mention.

The significance of hereditary transmission is shown to be a subordinate one, while there can no longer be any doubt of the contagiousness of pulmonary tuberculosis. A recognition of the accuracy of these propositions, particularly of the second, should lead to the adoption of rigid measures calculated to prevent the extension of a disease transmissible by intimate contact and communication. Sick and well should, as much as possible, be kept apart, and ample provision should be made to render innocuous and to prevent the dissemination of the ejecta and dejecta of the infected. Efforts should be directed to overcome the tendency to the disease in a predisposed subject by guarding the general health with jealous care and by raising the nutritive processes to such a standard of perfection as to render the body-tissues resistant to the invasion of noxious agencies. The intelligent physician of today must recognize that tuberculosis is not only a curable disease, but also a preventable one.

The small proportion of cases in which the tuberculosis appeared as a sequence of croupous pneumonia is a noteworthy observation that carries its own lesson. A larger proportion of cases seemed to be related to antecedent pleurisy. One will also be struck by the small number of cases associated with diabetes.

The large number of cases in young persons in which there was a history of recent measles should constitute sufficient admonition for the precautions to be taken in the convalescence from a disease considered to be among the mildest of the commonest. The old notion of the non-concurrence of pulmonary tuberculosis and valvular disease of the heart receives rational modification. Not only was the association relatively infrequent, but in the cases with valvular disease the course of the pulmonary affection was apparently retarded.

Finally, the results of treatment must be considered as in the highest degree encouraging. As the therapeutic procedures employed are not named, it is reasonable to assume that they were those in current use. The report bears the stamp of a healthy conservatism, and is free from any excess of zeal or enthusiasm that might attach to a special mode of treatment; so that the results recorded may be accepted as the unavoidable conclusions of an impartial study.

THE SENSORY CONDUCTION PATHS IN THE SPINAL CORD.

THE views held by most physiologists in regard to the paths that conduct sense-impressions in the cord have been based upon the classical experiments of BROWN-SÉQUARD, who taught that, soon after entrance at the posterior roots, all sensory impulses, save those of muscular sense, underwent complete decussation, passing up the opposite side. Although supported by a certain amount of clinical evidence, this theory has not been allowed to go unchallenged.

An epitome of the literature of the subject, together with the results of some personal experimental work by DR. F. W. MOTT, has been published in the *Philosophical Transactions* of the Royal Society of London for this year.

MOTT, under the direction of PROFESSOR SCHAEFER, experimented on nine monkeys, cutting through one half of the cord at different levels, and studying carefully the clinical and anatomic consequences. By means of a strictly antiseptic technique he was able to avoid the confusion arising from wound-infection, an evil that has too often vitiated the results of other observers. An analysis of his report shows that, after hemisection of the monkey's cord, conscious sensation and the power of localization usually remain on the non-paralyzed but *not on the paralyzed side.* In testing the sensibility, the use of Schiff's "clamp test" was found to be the most satisfactory. The clip was always removed from the non-paralyzed foot, but when attached to the skin of the paralyzed one the blindfolded animal either paid no attention to it or would scratch the same spot on the foot of the opposite side (Allochiria). The knee-jerk on the side of the lesion was generally abolished for a few days; later it was exaggerated. A few hours after the operation, vasomotor paralysis on the side of the section was manifested, the foot becoming swollen, dark, and distinctly hotter than its fellow; this paralysis was always temporary, passing off in one or two weeks. The surface temperature was at first higher on the side of the paralysis.

There was never any marked paralysis of the muscles invariably associated in movement with those of the opposite side. On an average, at the end of three weeks movements of the hip and knee returned on the paralyzed side; they were usually associated movements of flexion and extension. In some of the cases the motor areas of the cortex were exposed after several weeks and the effects of electric stimulation observed. The block was thus shown to exist even after a very complete return of associated movement.

Microscopic examination of the cord revealed the usual secondary degenerations; there were no crossed degenerations—and there had been no regeneration of nerve-fibers at the site of the lesion. MOTT believes that the direct cerebellar tract has its origin in the nerve-processes of the ganglion-cells of Clarke's vesicular column; and with reference to the antero-lateral tract he differs from both GOWERS and EDINGER in thinking that it is made up of fibers coming from cells of the *same* side.

These experiments prove conclusively that in the monkey the sensory paths do not entirely cross, and in addition make it probable that while painful and thermic sensations may pass up either side of the cord, the sensations of touch and pressure associated with localization, as well as the muscular-sense impressions, pass up chiefly by fibers of the same side. The return of sensation on the paralyzed side may be due to the development of collateral channels for sense, just as there are collateral channels formed for the production of bilateral associated movement.

To explain the peculiar condition of allochiria one may think of the nerve-impulse as being conducted, on account of the hemisection, in some way to the opposite side—and, after ascending the cord, crossing again high up to finally reach the cerebral hemisphere of the same side. Such a sensory impression of course misleads the animal as to the foot irritated, and it will keep up its fruitless attempts at removal until undeceived by visual correction.

These researches of MOTT give results quite in accordance with the experiments of WEISS, HOMAN, and OSAWA, who operated on dogs, and confirm the deductions of HORSLEY and GOTCH from their electric methods of examination. Nothing can as yet be definitely said as to the particular tract made use of by a particular variety of sensory impulse. The pathologic histology of tabes has given some support to the view that the muscular-sense fibers pass up in Goll's columns, and the loss of painful and thermic sensations in syringomyelia suggests the gray matter as the conducting medium for these impressions. On the other hand, we know that the gray matter of different levels is connected by certain ascending internuncial fibers—a fact that makes it probable that the central gray mass in itself does not conduct impulses of any kind very far.

The different theories as to the production of hyperesthesia are most conflicting, and no one of the various suggestions (*e. g.*, hyperemia, edema, removal of inhibitory influences) can be regarded as perfectly satisfactory.

The question, How far are we justified in applying the knowledge experimentally gained of the conduction paths in the spinal cord of monkeys to the physiology of the human cord? is a difficult one, which we shall not attempt to discuss. The cases of hemilesion of the cord in human beings that have been thoroughly worked out clinically and

microscopically are unfortunately few in number, and indeed so far as they go give evidence in favor of the decussation of painful sensations soon after their entrance at the posterior roots. They do not, however, point to any similar decussation of the impressions of tactile sense. We can scarcely expect a satisfactory clearing up of the subject until we possess a much more comprehensive series of cases in which the clinical phenomena studied by unbiased observers have been controlled by subsequent systematic histologic examinations.

DIPHTHERIA AND CROUP.

THE science of bacteriology has already opened a floodway of light upon many obscure problems in the etiology of disease; and evidence is not wanting as to the practical application of the information obtained from this source. While perhaps not yet absolutely proved, there is abundant testimony, clinical and otherwise, pointing to the identity of the two processes, diphtheria and croup. Partly in consequence of early teaching, partly because the evidence is not conclusive, there is still a minority that maintains the individuality of the two affections. One of the most conclusive clinical arguments of their identity is afforded by the fact that in some of the large Continental hospitals cases of croup and diphtheria are placed side by side in the same ward, and the cases of croup do not become infected; while it is not rare for diphtheria to develop in a family in which an apparent case of croup has been present.

The almost general acceptance of the dictum of identity is indicated by the tendency to treat cases of croup as though they were diphtheritic, and the instructions of Boards of Health that cases of croup be reported. FRAENKEL (*Deutsche medicin. Wochenschr.*, No. 24, 1892, p. 564) has added an opportune and valuable contribution to the controversy. The opportunity was afforded him of holding autopsies in four cases, clinically typical instances of croup. In none were subjective or objective evidences of pharyngeal involvement present. All presented hoarseness and marked difficulty in breathing. In two, tracheotomy was performed. The autopsies confirmed the freedom of the pharyngeal structures. In one case the membrane was situated below the glottis. Examination of the membrane present in each case disclosed the presence of the bacillus of diphtheria described by KLEBS and LOEFFLER, the identity of which was absolutely assured by its morphologic appearances, by its behavior in culture, and by its pathogenicity to animals. It is true that the number of cases reported is small, but the evidence adduced is positive and conclusive, and not to be controverted by any negative evidence.

Investigations by MIDDELDORPF and GOLDMAN (*Deutsche medicin. Wochenschr.*, No. 24, p. 570) have disclosed the identity of the pathologic processes in croup and diphtheria. In both there occurs an intense inflammation of the mucous membrane, leading to destruction and desquamation of epithelium. Abundant exudation takes place, with subsequent coagulation and the formation of membrane.

CHOLERA IN EUROPE.

CHOLERA once more threatens Europe. According to well-credited accounts it has invaded European Russia, but its presence elsewhere on the Continent has not been verified. While there is apprehension in this country lest the march of this scourge may continue westward, it can hardly be said that the United States is menaced so long as European commercial ports remain free from the disease. Nevertheless it is the part of prudence to look to our defences and to make every preparation to guard against this insidious enemy.

Sanitary officials abroad are on the alert, and strenuous efforts are being made to interpose barriers to the onward march of the disease; but too much dependence should not be placed on this means of protection. Communication is constant and rapid, and an outbreak of the malady in European ports brings it close to our doors. Fortunately, the points of entrance are limited in number, and to them the greatest attention should be paid.

The report that cholerine, which is prevalent in and about Paris, is a mild form of true cholera has been discredited by an official statement received by Surgeon-General WYMAN. Be this as it may, the large number of cases gives rise to a suspicion that dare not be disregarded.

Vigilant inspection of all arriving vessels should be provided for, and ample preparation for detaining for observation all suspected passengers and for disinfecting effectively the clothing and effects of passengers, and for treating thoroughly the vessels, should be made in advance. Weak places in the

line of our quarantine defences should be made strong and past oversights be corrected. A grave responsibility rests upon the sanitary authorities of maritime ports, and to them the country looks for protection.

REVIEWS.

A JUNIOR COURSE OF PRACTICAL ZOÖLOGY. By A. MILNES MARSHALL, M.D., D.Sc., M.A., F.R.S., Professor in the Victoria University; Beyer Professor of Zoölogy in Owens College, Manchester; Late Fellow of St. John's College, Cambridge. Assisted by C. HERBERT HURST, PH.D., Lecturer in the Victoria University; Demonstrator and Assistant Lecturer in Zoölogy in Owens College, Manchester. Third edition. London: Smith, Elder & Co., 1892.

THIS is the third edition of Professor Marshall's work, the first having appeared in December, 1886, and having been compiled for his classes in Owens College, Manchester, England. The work is now, owing to its usefulness, employed as a text-book in many other quarters.

The title of this justly popular work is misleading, inasmuch as, strictly speaking, the volume does not treat of "Practical Zoölogy," but is rather a guide-book to practical zoötomy, or a manual of animal morphology. In plan, it almost exactly follows Huxley's *Practical Biology*, and is even still nearer T. J. Parker's admirable little treatise on *Zoötomy;* but it is more extensive than either, and consequently correspondingly more useful to the practical student in the morphologic laboratory. Although quite brief, the sections in the introduction on the observations of animals during life, drawing, methods of killing animals, dissections, injection, manipulations of the microscope and reagents, and many other useful hints to the anatomist, are very clear and extremely valuable. Chapters beautifully illustrated by means of the finest woodcuts are devoted to the protozoa, the hydra, the liver-fluke, leech, earthworm, mussel, snail, crayfish, cockroach, lancelet, together with appropriate types from the vertebrate series. We fail to see, however, why Professor Marshall took up the study of the fowl and pigeon after the chapter on the rabbit rather than before it. The fact has its disadvantages, and should be remedied in the next edition. Moreover, we would suggest that a chapter on some appropriate reptilian form be added, as well as one devoted to some typical teleosteon fish. Upon the whole, the volume is remarkably free from mistakes of any kind.

DISEASES OF THE NERVOUS SYSTEM. By JEROME K. BAUDUY, M.D., LL.D., Professor of Diseases of the Mind and Nervous System and of Medical Jurisprudence, Missouri Medical College, St. Louis. Second edition. Philadelphia: J. B. Lippincott Company, 1892.

THE first edition of this work appeared in 1876, and has been out of print a number of years. The present treatise is divided into two volumes, the book now under consideration being Vol. I, although, curiously, the title-page does not convey this information. In the preface, however, the author states that diseases of the brain, cord, and peripheral nerves will be considered in the second volume. The volume under review deals with anemia and hyperemia of the brain and inflammations of its membranes, and the various forms of insanity. The subjects are not considered systematically, but are presented in the form of lectures (nineteen in number) delivered to the students of the Missouri Medical College. The work will doubtless have its widest circulation among Dr. Bauduy's pupils. We cannot help thinking that its influence will be limited, for it sadly lacks the stamp of originality. Many prominent alienists and neurologists are freely quoted. Indeed, whole pages are, at times, presented between quotation marks. Not infrequently, as in the case of transitory insanity, almost the entire article is made up of a quotation. The best authorities are generally quoted, so that a student or general practitioner could learn much from a reading, but to the neurologist there is nothing new in the book.

HOW TO FEEL THE PULSE AND WHAT TO FEEL IN IT. PRACTICAL HINTS FOR BEGINNERS. By WILLIAM EWART, M.B. Cantab., F.R.C.P., Physician to St. George's Hospital, etc. With twelve illustrations. 8vo, pp. xv, 112. New York: William Wood & Co., 1892.

A STUDY of the pulse is at once so interesting and so instructive that the liberally-educated practitioner of medicine cannot afford to be uninformed upon a subject to which really a good deal of importance attaches. As in all else, the information to be gained from a study of the pulse will depend upon the skill of the observer, and skill only comes with experience. The pulse is eminently a practical subject, best taught by actual demonstration. Description, however, may be made useful as a guide, directing ends to be sought, facilitating study, defining technical language, and presenting the accumulated experience of many observers. The little book before us is eminently fitted to fulfil these several indications. Tersely written in clear language, it will prove useful to the student in grasping a subject for the practical application of which the practitioner many times daily finds opportunity. There is one lesson the discriminating reader cannot fail to take away with him, and that is that to be a good clinician he must be a good physiologist. The work concludes with a "Glossary of terms in use at the present time or in the past in connection with the pulse," and a list of the Latin names for the many different kinds of pulse that have been described at one time or another.

ELEMENTS OF MATERIA MEDICA AND THERAPEUTICS. By C. E. ARMAND SEMPLE, B.A., M.B. Cantab., M.R.C.P. London. With 440 illustrations. Pp. xxxii, 480. London: Longmans, Green & Co.; and New York: 15 East 16th Street, 1892.

THIS book will commend itself at once as a practical manual of materia medica and therapeutics. While there exists a multiplicity of truly excellent volumes upon materia medica, the importance of the subject and the constant additions thereto render acceptable any book that will present the matter in a new and agreeable

form. This may be said of the one in question. Its claim for recognition is based upon the peculiarity and simplicity of classification, the comprehensiveness of detail, the multiplicity of illustrations, and the exclusion from its pages of all material not recognized in the 1885 edition of the *British Pharmacopeia* and its Appendix of 1890. Naturally the limitation to those remedies which are officinal forbids the introduction within its pages of many of the more recent drugs which are becoming generally known and employed, but with this exception apparently no efforts have been spared to thoroughly modernize the subject. The American student, however, will find many familiar preparations not mentioned, while their places are taken by preparations as equally unfamiliar. The arrangement adopted is a natural rather than a therapeutic or physiologic one, while the numerous woodcuts lend an additional interest and value to the work.

SOCIETY PROCEEDINGS.

AMERICAN NEUROLOGICAL ASSOCIATION.

Eighteenth Annual Meeting, held in New York, June 22d, 23d and 24th, 1892.

THE President, DR. C. L. DANA, briefly reviewed the progress of the Association since its inception, and made reference to members deceased since the last meeting, paying special tribute to the memory of the late DR. BIRDSALL.

DR. C. A. HERTER, of New York, read a paper entitled "Researches upon the Etiology of Idiopathic Epilepsy." The investigation was originally undertaken with a view to studying the relation of uric-acid excretion to the epileptic paroxysm. It could not be determined that the seizures of grand mal were determined by an excessive accumulation of uric acid in the blood. Some observations, however, of another kind, had suggested the possibility of a causal relationship, in some cases, between putrefactive processes in the intestines and epileptic seizures. Certain substances in the urine, namely, the ethereal sulphates, had been shown to be derived from putrefaction in the intestine and the extent to which such putrefaction occurred might be inferred from the quantity of these substances in the urine. Thirty-one cases of epilepsy were thus studied. Twenty-nine presented attacks of grand mal. In rare instances only, did the excretion of uric acid before the seizure vary from the limits of health. The urine passed after a seizure, however, generally presented a higher uric-acid ratio than the urine before or about the time of the seizure. In cases of petit mal a continuously high uric-acid excretion had been observed and appeared in some way to be related to the cause of the seizures. Of the twenty-nine cases of grand mal, twenty-one presented unmistakable evidence of excessive intestinal putrefaction. There appeared to be a general correspondence between the seizures and the degree of intestinal putrefaction as gauged by the analysis of the urine.

DR. E. D. FISHER stated that the clinical facts tallied with the deductions arrived at. Given an unstable cortex, there is no reason why the chemical products of intestinal decomposition might not act as the irritating cause of the seizure.

DR. WHARTON SINKLER cited a case illustrative of the action of putrefactive changes in inducing epileptic attacks. The seizures occurred every one or two months, but they were frequently warded off by active purgation.

DR. H. A. TOMLINSON emphasized the fact that keeping the bowels open and seeing to the proper exercise of the epileptic insured fewer convulsions and a less uncomfortable existence.

DR. HERTER expressed the view that the substances that he had been isolating did not act as a cause by themselves, but as irritants upon a predisposition.

DR. J. W. PUTNAM, of Buffalo, read a paper entitled "Sleep Movements of Epilepsy." He related the case of a patient who had a convulsion almost every evening. While waiting to observe an attack, he had several times noticed that the patient restlessly tossed the left arm, while the right was quiet. No movements of the legs were observed; there were no convulsions on the night of the observation, but the mother of the patient stated that during attacks the patient always turned on her left side. The thought suggested itself that a series of observations of epileptics during sleep might show similar movements, which might be of a localizing value.

DR. ISAAC OTT, of Easton, read a paper on "The Seat of Absinthe Epilepsy." He reviewed the various experiments that had been made in localizing convulsive movements, dwelling especially upon the absinthe tests.

It has been found that after injection into the jugular vein of two drops of essence of absinthe, the facial muscles were involved in a single clonic spasm, passing into a state of tremulous tonic spasm. This order of convulsion passed rapidly down the body until the tonic spasm in the limbs was extremely marked. After a short period the tonic spasms gave way to a long series of clonic twitches. Accompanying these convulsive phenomena there was profuse salivation and sometimes escape of urine, while, in cases in which narcosis had not been employed, unconsciousness and coma were early symptoms. The effect upon the cord was also tested by means of the electric method, using both the galvometer and the electrometer. The results showed that the employment of absinthe gave maximal electromotive effects in the sciatic nerve, through the overwhelming discharge of the highest cortical centers. It was also observed that absinthe caused an additional electric excitation of the centers, producing more energy. Absinthe not only produced typical epilepsy in animals, but also in man. That the convulsions were not due to circulatory changes is generally admitted. The theory of spinal origin has been exploded. The evidence indicates that the seat of origin of tonic and clonic movements in epilepsy is in the cortex, and their expression takes place mainly by means of ganglia seated in the pons. The word cortico-pontal might express the origin of convulsive epilepsy due to absinthe.

DR. HENRY R. STEDMAN, of Boston, read a paper entitled "Separate Provision for Epileptics, both Public and Private," entering a plea for the exclusive care of epileptics in special establishments, on the colony plan, throughout the country. That this is practicable, the colonies for epileptics in other countries, particularly in Germany, have demonstrated. The deplorable condition of these unfortunates in almshouses, in which there are large numbers in most of the States, cannot be too

severely condemned. The usual practice of caring for these patients with the insane in lunatic asylums is a great disadvantage to both classes.

DR. BULLARD said that in Massachusetts steps had already been taken to establish suitable special institutions for the care of epileptics. A bill had been prepared by a special committee and presented to the proper authorities.

DR. FREDERICK PETERSON urged the necessity for energetic support of the measures already taken, and added that if his hopes were realized, 120,000 epileptics would have opportunity for instruction and for leading useful lives.

DR. FISHER said he hoped the movement would meet with every success. Treatment does but little good. What is needed is an opportunity for work.

DR. WM. M. LEZYNSKY expressed the view that it would be undesirable to associate cases of chronic epileptic insanity with ordinary epileptics.

DR. TOMLINSON stated that none of the institutions for the insane in which epileptics are kept is suitably equipped to care for them. It was necessary that epileptics should receive special attention. They often evince a tendency to eat voraciously. Constipation is frequent among them, and the auto-infection thus produced increases the frequency of the seizures. If separate treatment, occupation, and proper diet could be provided, epileptics would doubtless lead more comfortable, and, in many cases, really useful lives.

DR. SACHS expressed himself in favor of provision by the State for epileptics, but thought that much must be done by private endeavors. Many of the younger epileptics had no opportunity for proper education. For these there should be private institutions in which distinct educational advantages should be afforded.

The PRESIDENT stated that, after investigation, he does not believe that there should be State provision for epileptics, at least not at present. There is now an enormous number of defective institutions under political influence. If there were added 15,000 epileptics to the 15,000 insane, the condition of the former would, by no means, be benefited. While the institutions for which Dr. Stedman pleaded are undoubtedly needed, efforts should be made to interest private citizens in their support.

On motion of DR. STEDMAN the following resolution was adopted: "That it is the unanimous sense of the American Neurological Association that the proper care of the epileptic class, so long delayed, be urged upon the public, upon State authorities, and especially upon all interested in the care of the sick and defective poor, whereby they may be relieved from asylums and almshouses, and may receive the required care in such separate establishments as their deplorable situations demand."

DR. E. C. SPITZKA, of New York, read a paper on "A New Symptom Indicating Combined Cerebellar and Spinal Incoördination." He reported the case of a child whose attitude and appearance were characteristic of that form of pseudo-hypertrophic paralysis in which the atrophy of the arms markedly antedated wasting in the lower extremities. Whether dressed or undressed, under examination and observation or not, the patient had a habit, with his right hand, the thumb and fingers flexed, of making a sudden motion toward the nose; at the same time there was a straightening in his attitude as if all the muscles involved in maintaining the erect posture were in action. A peculiar expression would cross his face, the head and eyes being turned toward the approaching finger. The child had also imperative conceptions, and a fear of going under a certain tree, a terror, late in the day, of a Newfoundland dog, for which at other times he showed great affection. He had also a terror of the stairs, and even on a level he had an impression as of a yawning precipice. The mother stated that three members of her husband's family were in insane asylums—a brother, a sister, a first cousin, and the grandfather. The uncle and cousin had exhibited exactly the same motion of the hands. The father of the child had some slight ataxia in the hands.

Dr. Spitzka related that he had seen four other patients who presented similar strange automatic movements; in two cases these were bilateral and limited to the arms; in the third they were associated with salaam movements of the head and neck; in the fourth, there was a tendency to a hop-skip-and-jump action. The fourth case was the only one in which there would have been any doubt as to the interpretation of the symptoms had it not been for the bad family history. The patient presented a movement strongly resembling that of the first patient, exceeding it, however, as regarded the turning of the head and neck; the index finger alone was raised and slightly curved, and the patient would start two or three times a minute to imitate the motion that one would make in saying, "I hear a noise there." There was a fixed hallucination of sound, located, the patient said, exactly six inches in an accurately defined direction from the right parietal bos. The patient eventually died of diarrhea, and an autopsy was obtained. No structural disease either of the cord or brain could be found. There was a heterotopia parallel with the claustrum in the region corresponding with the posterior slope of the island of Reil on the left side, and some peculiarities of the gyri that were regarded as abnormal. The convolutions were asymmetrical and atypical.

DR. B. SACHS, of New York, presented "A Further Contribution to the Pathology of Arrested Cerebral Development." He dwelt upon a small group of cases that run in families; the children appear to do well until between the fifth to the eighth month, when a retrograde movement sets in. The cerebral functions, sensory and motor, gradually become impaired. The child soon becomes idiotic, blind, and more or less paretic, death taking place from marasmus. The case reported occurred in a sister of the child whose brain had been reported upon five years before. The child when first seen was thirteen months old. It was born at full term, a perfectly healthy infant, was nursed at the breast, and had appeared to be developing finely until the age of eight months, but from that time on there had been steady retrogression. Close examination showed that the child could not hold up its head; nor could it sit up unless supported; it had no perception of light; the pupillary light-reflex was gone. There was slight sense of hearing, but the child could not distinguish between sounds. There was a spastic condition of the upper and lower extremities. There were no spontaneous movements of any sort, the child sitting listlessly on the

nurse's lap. The knee-jerks on both sides were distinctly exaggerated; no ankle-clonus was obtainable; the plantar reflexes were also increased. The resemblance to the first child was very close in every respect, except that the paresis was more spastic. The condition grew steadily worse, and the child died of marasmus at the age of twenty months. A week before death there had been considerable fever and several convulsive seizures. The autopsy was performed twenty-two hours after death. Most careful examination of all the organs, and of the larger glands failed to detect evidence of syphilis. The skull was symmetrical, of good size, but was unusually thin; the fontanels were closed, but still transparent. The dura was adherent to the skull, so that the brain had to be removed with the calvarium. As in the case of the first child, the brain was firm to the touch, almost as hard as a brain that had been in Müller's fluid for some weeks. The pia could be easily detached, and the cortex, though pale, presented no unusual appearances. The cord presented no abnormal conditions. Very careful microscopic studies of sections of the ganglia, pons, medulla, and cord were made. Marked changes, identical with those present in the first case, were found in all parts of the cortex. In all of the sections examined, not a single normal pyramidal cell could be discovered. The cell-bodies were altered either in shape or in general appearance; the cell-nuclei and the nucleoli were distinct enough, but were surrounded by an altered cell-body, which did not properly take the ordinary strain. The neuroglia cells appeared somewhat increased and the tissue rather dense. The bloodvessels were present in at least the usual proportion, most of them being filled with blood, but there was no sign of any active inflammatory condition. The condition appeared to be a true *agenesis corticalis*.

DR. SACHS and DR. A. G. GERSTER presented a "Report upon the Surgical Treatment of Epilepsy." The cases operated upon were selected with considerable care. They were either of distinctly traumatic origin or such in which a strictly localized convulsion pointed to a limited focus of disease. Cases of general epilepsy of non-trumatic origin were not subjected to operation. In regard to the determination of the brain areas to be operated upon, it was the custom to map out upon the skull with the greatest care in advance of the operation the exact site of the various divisions of the motor areas. In most cases this is quite unnecessary, as the application of the faradic current to the dura would help to localize centers much more accurately than any of the customary rules. While this method will be found entirely satisfactory in cases of ordinary brain-lesion, the morbid brain, as in cases of tumor or in cases in which the brain-tissue had been seriously altered by disease, might not respond as promptly to the current. In such cases the older method of determining the areas would have to be resorted to. The first and most notable result of the operations was that not a single decided cure could be claimed. In several of the cases, there had been marked amelioration immediately after the operation; in some the improvement had lasted a few months, but in every case the attacks recurred after the lapse of several months or less. Operative procedure accomplishes so little because the cases come under notice after the epilepsy has been established for many years. It is now generally conceded that though a focus of disease is the actual cause of the epilepsy, this epilepsy does not as a rule manifest itself until widespread changes have appeared throughout the entire brain. The time that elapsed between the infliction of the initial lesion and the development of these secondary changes corresponds quite accurately with the period of time between the traumatism or the initial disease and the development of the epilepsy. The excision of the cortical tissue after the establishment of epilepsy is of questionable merit. The only hope from surgery is in the prompt interference in all cases of traumatism to the skull, to remove the focus of disease before secondary changes have been set up.

DR. G. J. PRESTON, of Baltimore, read a paper entitled "Some Contributions to the Muscular Sense." The following is a summary of his deductions: The posture-sense is the result of afferent impulses derived from muscles, tendons, articulations and their coverings, and bones. It is independent of and separable from general tactile sensibility, and can possibly be distinguished from the other members of its class, as the pressure-sense, for example. The course of these impulses through the cord is almost certainly by means of the posterior columns. They probably pass into the corpus restiforme and the cerebellum. In all probability they pass through the anterior portion of the posterior third of the posterior limb of the internal capsule, occupying an intermediate position between the motor and sensory fibers in this region. Without positive data on either side, it seems most probable that the center for the posture-sense is located in one of the cell-layers of the motor cortex.

DR. H. H. DONALDSON, of Worcester, read a paper "On the Extent of the Visual Area of the Cortex in Man, as Deduced from a Study of Laura Bridgman's Brain." In Laura Bridgman's case vision had been lost in the left eye at twelve years of age. When first examined the right cortex was found to be thinner than the left. The posterior portions of both hemispheres being compared, it was found that on the right side the cortex was thinner over an area that corresponded pretty nearly with that described as representing the visual area.

DR. DONALDSON also read a paper on "The Criminal Brain; Illustrated by the Brain of a Murderer." Examination of the brain of a murderer of undoubtedly criminal characteristics showed that it did not present the confluent fissures described by Benedict as characteristic of criminal brains. It is maintained that many of Benedict's so-called characteristics are to be found in the normal brain. It has been determined by comparison that there are more confluences in normal brains than in those of criminals. If increased fissuration is a criminal characteristic, other things being equal, this would imply an increase of gray matter; therefore, low-type brains might be said to have proportionately a larger amount of gray matter. Undoubtedly, the criminal brain could be picked out of a mixed lot, but only by virtue of general characteristics; and there could be no certainty that all criminal brains could be thus selected. The characteristics of degeneracy are such as were to be found in the rest of the body, and are not sufficiently marked to be expressed in a systematic manner.

DR. COLLINS related that in holding an autopsy on a murderer who had lost his life in attempting to take that of a New York financier, he had found really remarkable structural changes; whether these were the result of retrograde changes during life or represented an inherent structural absence from the beginning he could not say. The fissure of Rolando was very shallow, the gray matter thinner than normal. The ascending parietal convolution was small and the entire left hemisphere gave an idea of abnormal changes of conformation.

DR. CHARLES K. MILLS expressed the view that there are many misconceptions on the part of those who criticised the observers who had reported aberrations and irregularities in the brains of criminals. No one believes that all criminals present a brain-anatomy that would enable them to be ranged under a special type. Criminals belong to very different classes. A criminal type of brain could be expected from those who were victims of a bad heredity or very early arrest. Paranoiacs, criminals, idiots, imbeciles, those generally who were victims of arrested or abortive development, would probably present brain-abnormalities of a gross kind.

DR. KNAPP stated that it is as vague to speak of a criminal brain as it would be to speak of an insane brain, classing together indiscriminately mania, melancholia, paranoia, and general paralysis.

DR. F. X. DERCUM, of Philadelphia, presented a "Description of a Chinese Brain." The greatest circumference of the skull was twenty-one inches, or 55.3 cm. The naso-occipital arc was 32 cm; the naso-bregmatic arc, 13; the bregma-lambdoidal arc, 12; the lambdo-occipital, 7. The brain, without the dura and without draining, weighed forty-seven ounces. It was anemic, but not edematous. In the right cerebral hemisphere the fissure of Sylvius was very short, and turned sharply up, ending at a point just vertically below the lower extremity of the inferior retrocentral fissure. The fissure of Rolando was normal; it did not quite reach the longitudinal fissure above. The central convolutions were narrow, measuring about 2 cm. in width. The first and second frontal fissures were distinctly outlined, and did not run into other fissures. The inferior and superior precentral fissures were distinct and normal. Anteriorly the interparietal fissure connected superficially with the retrocentral, but was separated by a low, bridging convolution. It did not run into the occipital lobe, but curved up and dipped into the longitudinal fissure. The anterior occipital fissure was plainly marked. The parieto-occipital fissure was deep and wide, and on opening it a small convolution lay at the bottom. There was no inferior *pli de passage*. The first temporal fissure ran into the fissure of Sylvius. In the left hemisphere the fissure of Sylvius was normal. The first temporal fissure ran into it, as did the fissure of Rolando. The fissure of Rolando was marked, and ran into the fissure of Sylvius. The first and second frontal, and the precentral fissures were normal. The interparietal fissure was marked, and ran into the occipital lobe. The parieto-occipital fissure resembled that of the right hemisphere. The anterior occipital fissure was marked. There was no inferior *pli de passage*. The first temporal fissure ran into the fissure of Sylvius, and was broken in two places.

In all of the brains of Chinese so far examined an unusual tendency to transverse or perpendicular fissuration has been present. There was also unusual sinuosity of the fissures. Of the gross peculiarities, there was a marked obliquity or eversion of the basal surface of the frontal lobe. In both of two specimens previously described complexity was given to the frontal lobes by the appearance of well-marked medi-frontal elements. In the present specimen an added frontal fissure was present in the left lobe, but was comparatively short. In the right lobe only traces of it were found. In all of the specimens the cuneus and the occipital lobe were rather small. Owing, probably, to the unusual sinuosity of some of the fissures, together with the excessive transverse fissuration, these brains have a physiognomy, as it were, of their own. In general appearance they were certainly different from the average white brain, and very different from the brain of the negro.

DR. JAMES HENDRIE LLOYD, of Philadelphia, read a paper on "The Association of Hysterical Trembling and Anorexia Nervosa, with Report of a Case." The case was that of a young woman who had been first observed at a remote farm-house in Pennsylvania. She had been ill for two years. She presented a peculiar rhythmic, constant tremor, which was not paralysis agitans. The tremor occurred in waves of exacerbation and opisthotonic spasms every minute or so. The patient had hysterogenic zones, pressure over which would induce a spasm. She also presented the condition described by Gull as anorexia nervosa. By a mistake, a large dose of ordinary saltpeter had been given, instead of sulphate of magnesium. While no harm had directly resulted from this error, the mental disturbance had been so great that regurgitation of food had set in and had become the most pronounced complication in the case. The patient was found lying upon her side, with cloths under her chin to catch the regurgitated material. She was emaciated to the last degree. There was no atrophy, but simply inanition. This condition was followed by true hysterical retention of urine, lasting sometimes for two days. Upon removal to a private hospital, the tremor had greatly subsided and regurgitation of food had entirely ceased.

DR. RIGGS cited the case of a woman under his care believed to be suffering from hysterical tremor. The attack came on only during the morning hours. No stigmata could be found. There was persistent nausea and continuous headache. Under the usual therapeutic measures the patient had steadily improved.

DR. WEBBER stated that these patients do not really swallow—at least, the food does not pass into the stomach. If food were made to pass into the stomach through a tube the vomiting ceased. The symptoms ceased, and the ability to take food returned, if the patients were removed from home for a time.

DR. PRESTON stated that it is necessary to distinguish between hysterical tremor and the *tremblement nervosæ* of Charcot. There is an hysterical tremor due to distinct cortical inhibition, an absence of stimuli sufficiently close together to insure summation, and hence there is a series of movements resulting in tremor. In a case of hysterical anorexia, with nervous tremblings at intervals, the patient had lost 50 per cent. of body-weight.

DR. MILLS stated that he had seen Dr. Lloyd's case

and considered the diagnosis correct. It is important to determine that the tremor or abnormal movements are not purely hysterical or associated with melancholia or some organic disturbance. A diagnosis of the hysterical character of the tremor is to be made chiefly from the association of other hysterical manifestations. As to the prognosis, many of such cases would outlast their medical observers.

DR. SACHS related the case of a young woman who absolutely refused to take food on the plea that she could not swallow. Efforts were made to administer food by force. She would keep large quantities in her gullet and then go into a corner of the room and eject it. When fed, she would gag and regurgitate a little, but it was not believed that she emptied the contents of the stomach entirely, and it was agreed that it was not true vomiting. Male hysterical patients are much more difficult to handle than female patients. The majority of these patients must swallow. The best proof that they are not without food lay in the fact that they increase in weight. The hystero-epileptic regimen has been followed in these cases by brilliant results. Few cases of hysterical anorexia will resist cold water applied under considerable pressure.

DR. C. K. MILLS read a paper entitled "Folie à Deux, with Remarks on Similar Types of Insanity." He reported the cases of two sisters, the eldest thirty-two years of age, the other less than two years younger. The father was a hard-drinking, quarrelsome man. The first patient had been deranged for three or four years. She had complained of feelings as of something growing in her abdomen, of sickness of the stomach, bloody passages, chills, and other unpleasant sensations. For a long time she had been annoyed by strange voices. She was tormented by others, both at her work and at home, and was made to say very ridiculous things. She apparently had hallucinations of several senses. A stench of blood came up through her throat; at times she was grasped by a hand or hands. Men would appear before her; sometimes they would get on their knees and solicit her. She was full of sexual delusions with reference to men and their designs upon her. The heads of men would appear before her at her work. When she did not see them, she would sometimes feel them or hear them; often she heard their voices talking with her after midnight, saying all sorts of filthy things.

In the second patient the mental disturbance had apparently come on a few weeks after that of the first. The delusions of the first had to some extent, been imposed or communicated to the second. Besides having various physical symptoms, the second patient, who seemed to be weaker both mentally and physically than the other, told the most filthy stories. She said that she knew the men that were abusing her. These patients had evidently become a nuisance both at their home and in the neighborhood. Some of the men they had accused had been threatened by them. They appeared to believe firmly in what they said, and yet at times to appreciate that something was mentally wrong. They eventually went quietly and without resistance to a hospital for the insane, thinking apparently that they might be able to get their troubles straightened after they got there. They presented, as is not unusual, a blending of the characteristics of the three forms of folie à deux—that is, of the imposed insanity, the simultaneous insanity, and the communicated insanity. The influence of heredity was decided; the delusions were persecutory.

DR. MILLS reported "A Case of Rapidly Fatal Motor and Sensory Paralysis, with Autopsy, showing Acute Myelitis Mainly of the Dorsal Cord." The patient, a man thirty-seven years old, with an uncertain specific history, six months before coming under observation had had a large carbuncle between the shoulders. For months he had shown some tendency to drag his feet. For two weeks he had had pain and soreness almost in the line of the right nipple, which extended later into the armpits and down the inner side of the arm. Four days before he was first seen, he complained of severe pain in the loins. On the next day, he was barely able to walk, and in thirty-six hours he could not stand. Twenty-four hours later he was completely paralyzed in both lower extremities, and showed also total loss of sensation as high as the nipples. He had incontinence of urine and feces; the knee-jerks, the muscle-jerks, and the cutaneous reflexes were abolished. This extreme paralysis was fully developed three days after the first symptom of motor impairment became marked. The temperature rose rapidly to 104° or 105°, with a corresponding increase in the frequency of pulse and respiration. Ten days after the onset, the man died. From the fourth to the eighth day his condition did not change much, except that the line of insensibility advanced a little higher and ecchymotic areas appeared on the thighs. The motor paralysis, reflexes, etc., made no improvement. On the ninth day he complained of severe paroxysmal pain in the upper arms. Mucus collected in the larynx, the voice became weak, the surface of the body cold, with some delirium and at times a marked disposition to somnolence. From the ninth day the man kept both forearms flexed and rested them on his abdomen and chest, the little and ring fingers being also flexed. At the autopsy, the vessels of the spinal pia were greatly distended with blood. On section, the periphery of the cervical cord was of good consistence, but the center was much softened. As the sections were made lower down, the transverse area of the softening increased, until in the dorsal region only a shell of solid tissue surrounded a creamy mass. The softening grew less again in the lumbar region. Below the right groin was a swelling containing broken-down glands and pus. The other organs and parts were found to be normal. Microscopic examination showed the nervous tissue in the dorsal region to be almost entirely destroyed. The bloodvessels were distended and there were many scattered hemorrhages. Hemorrhages were also present in the pia and in some of the peripheral nerve-roots. The upper part of the cervical region was but little affected, the lumbar much less than the dorsal. The case was unquestionably one of acute, rapidly spreading myelitis.

DR. SACHS stated that he had seen several cases in which acute myelitis led primarily to death. In the case reported, the analogy with acute tuberculous myelitis suggested itself. Dr. Sachs had seen three cases with such characteristics, in all of which tubercle-bacilli were discovered in the broken-down cord. In cases in which there has been some chronic disease of the spinal cord before exposure to tuberculous infection, the cord is very prone to break down.

DR. PRESTON agreed with the opinion that the case could be considered as one of hemorrhagic myelitis, producing distinct arterial sclerosis. He had seen a case of the kind apparently due to a very limited local tuberculosis of a vertebra. The vertebra was not broken down, and the bone not decidedly involved. There were tuberculous nodules in the coverings of the cord at the point where the myelitis began.

DR. MILLS and DR. JOHN B. DEAVER reported "A Case in which Exploratory Trephining and Ligation of the Vertebral Artery were Performed, Autopsy showing Gliomatosis of the Cerebellum, Pons, and Oblongata, with Hydrocephalus and Hydrorrhachis; Opening in the Skull from Continued Pressure." The patient was a boy, eleven years of age, who, in December, 1889, had commenced to complain of pain in the head and some stiffness of the neck. To this were slowly added failure of sight, attacks of nausea, occasional paroxysms of violence or excitement, strabismus, staggering in walking—a little more to the left than to the right—a feeling of dizziness described as "going over," and shortness of breath. Before the operation, double optic neuritis in an advanced stage was present. Hearing and taste were not impaired. There was no motor paralysis, no disturbance of common sensibility, and no nystagmus. On examination, a pulsating tumor was found in the occipital region, slightly protruding through a small opening in the skull to the left of the occipital protuberance. A distinct thrill and bruit seemed to be present. Three scars were noted on the posterior aspect of the head, one just above and to the right of the opening.

A tremor was felt resembling that made by an arteriovenous aneurism. Pressure upon the carotid arteries lessened the pulsation and bruit. The opening in the skull was enlarged, so as to examine the supposed aneurism, which appeared to be in the line of the lateral sinus, but when this was done the character of the swelling was too uncertain to go further. An exploring needle was introduced; on its withdrawal there was considerable bleeding, only arrested by long-continued pressure. Subsequently the left vertebral artery was ligated, but without beneficial results. After the operation, the pupil on the side corresponding to the cicatrix was contracted. The patient slowly grew weaker, and died several months after the operation. At the autopsy a gelatinous mass was found occupying much of the fourth ventricle, reaching from or into the middle lobe of the cerebellum and both cerebellar hemispheres. The ventricles of the brain and their horns were enormously dilated, and at several places at the base rupture had almost taken place into the cranial cavity. When the spinal cord was severed from the medulla oblongata, the central spinal canal was found to be one-sixth of an inch in diameter, and from it much fluid escaped. The chief points of interest were with reference to the diagnosis from aneurism, the mechanism of the process by which the opening in the skull resulted, and the production of the hydrocephalus and hydrorrhachis.

DR. L. C. GRAY, of New York, reported "A Case of Huntington's Chorea; also one of Congenital Huntington's Chorea, the First on Record." The first case was in a man in whose family the disease had manifested itself for many generations. The movements and progressive muscular tremors had appeared when the patient had reached the age of forty-five years. The swaying and dancing movements were not considered those of chorea. The second case was in a child, and was thought to be one of congenital Huntington's chorea. There had been no similar trouble in other members of the family and the general history was negative. The choreic movements had been noticed immediately after birth.

DR. J. H. LLOYD expressed the view that so-called Huntington's chorea, though clinically similar to ordinary chorea, is dependent upon a different pathology. Mental failure is usually associated with adult chorea.

DR. SINKLER stated that the case presented differed from ordinary chorea, and had probably begun as spinal disease. It was much like so-called spinal chorea.

DR. COLLINS reported having observed the case of a child of eleven in whom the movements, which dated from birth, were more characteristic than in the case presented, in whom the lesion was probably one of the medullary areas, the choreic movements being associated with the lack of development in these areas.

The PRESIDENT presented a case of hereditary chorea in a Scotchman in whose family the disease had appeared for four or five generations.

DR. PHILIP COOMBS KNAPP, of Boston, read a paper on "Traumatic Nervous Affections." He presented a summary of ninety cases. Pain in the back was present in fifty-six. Five cases were due to direct injury to the cord, resulting in paraplegia. In four cases, there were symptoms of insidious onset referable to the cord: paresis, vesical disturbances, and a slight spastic condition; the lesions were thought to be chiefly in the lateral columns. Systemic diseases, such as tabes or spinal muscular atrophy, were rare. Thirteen cases were regarded as of more distinctly cerebral origin. In some cases the symptoms indicated a focal lesion, hemorrhage, fracture, or meningitis. Twelve cases were believed to have an organic basis, a diffuse sclerosis of the cerebral nervous system. Four of these had terminated fatally. Four others were thought to belong to this class, but they were classified as doubtful. Twenty-six cases were classed as neurasthenia. Seventeen cases were classified as hysteria. Most of these also presented symptoms of neurasthenia. Pure hysteria was rare. Successful simulation was believed to be extremely rare. The prognosis depends upon the form of disease.

DR. E. C. SPITZKA, of New York, made some remarks on "The Treatment of Syphilitic Nervous Affections." He stated that empirically, the more rapidly a syphilitic lesion of the central nervous system is developed, the more rapidly fatal or radically curable it is. An established sclerosis of non-syphilitic origin will be as readily affected by the iodides or mercury as one of syphilitic origin. The later the outbreak of nervous sequelæ, in a case of paretic dementia of syphilitic origin, the less useful the iodides and the more useful are mercurial preparations and the associated baths. An interrupted plan of treatment covering a long period of time is more applicable to late cases than the energetic single course.

DR. THEODORE H. KELLOGG, of Flushing, read a paper on "The Toxic Origin of Insanity." He stated that it is established that a considerable percentage of all mental disorders have a toxic etiology. Whenever a

poison entered the human system, and through its presence directly or indirectly caused prolonged derangement of the mental functions, the insanity may be considered toxic. The exciting cause will be most active in cases having a native instability of nervous centers. The toxic agent may be vegetable, animal, or mineral. It may be generated as an organic virus in the bodies of others, or it may originate through metabolic tissue-changes in the patient himself, as in the auto-intoxications. It may gain access to the system through the alimentary canal, by the respiratory tract, or through the cutaneous surface, and may act on the cerebro-spinal centers or the sympathetic nervous system by direct affinity, or through pathologic changes induced in the blood, or in the internal organs.

DR. TOMLINSON contended that a toxic influence could not produce insanity of itself, in the absence of a preëxisting instability of the nervous organization, inherited or acquired. Insanity resulting from the misuse of narcotics and alcohol is to be considered as a manifestation of defective nervous organization, exaggerated by the toxic influence these substances exert upon the organism. In auto-infection the same conditions must necessarily exist, else auto-infection would be a more common cause of insanity.

DR. H. A. TOMLINSON, of St. Peter, presented "A Study of the Sensory and Sensory-motor Disturbances Associated with Insanity, from a Biological and Physiological Standpoint." For convenience of study, he arranged the sensory and motor disturbances associated with insanity as follows: Sensory—Disturbance of general sensation, including anesthesia, analgesia, paresthesia, and disturbed muscular sense; disturbance of special senses, including auditory, visual, olfactory, gustatory, and tactual hallucination; illusions, manifested by associated perversions, and lastly visceral hallucinations. Motor disturbance—Tremor, local or general; automatic associated movements; paresis and paralysis, involving special muscular groups or general muscular function; vasomotor disturbance, spasm, and convulsion. He summarized the result of his studies as follows: The application of the theory of evolution to the study of the development of the nervous system, and the normal manifestation of its activities, furnishes the best and most satisfactory basis for the study of the hereditary and acquired imperfections in its structure, with the resulting abnormal manifestation of functional activity, both sensory and motor, as well as the influence of the environment of the individual in determining the nature of the perversion. He expressed the opinion that the future progress in the study of insanity and its associated disturbances, especially its prevention and cure, would depend upon a study of biology and physiology, rather than pathology.

DR. THOMAS J. MAYS, of Philadelphia, read a paper entitled "Pulmonary Phthisis in its Relation to Insanity and to Other Neuroses." [See THE MEDICAL NEWS, July 16, 1892, p. 57.]

DR. J. J. PUTNAM, of Boston, reported "A Case of Akinesia Algera." The patient was a middle-aged man, who belonged to a family of nervous invalids. His trouble had existed since childhood and had gradually increased in intensity. The most conspicuous symptom was excessive pain immediately following the use of the muscles. There was no sign of any trophic changes. The man was well formed, had a delicate skin, and presented no other symptom. There was no tenderness.

DR. J. J. PUTNAM also read a paper entitled "Cephalic Tetanus." He reported a case in which the patient, after having five teeth filled, had been seized with stiffness of one side of the face and neck, followed by spasms so severe that the teeth were ground together; the spasm was continuous. The temperature was 101° F. After some six or eight weeks the symptoms passed away, but as they abated the opposite side became involved, although in a less degree.

NEWS ITEMS.

Professor v. Helmholtz, of Berlin, has been elected a member of the French Academy of Sciences.

Professor His, of Leipsic, has been elected a foreign member of the Stockholm Academy of Sciences.

Biermer, the distinguished German clinician, died recently at Breslau, sixty-five years old. It was he that announced pernicious anemia as a distinct disease.

Henry A. Riley, A. B., LL.B., a frequent contributor to medico-legal literature, died of heart-disease in New York on June 9.

Dr. Julian J. Chisolm, LL.D.—At the recent Commencement of South Carolina College, at Columbia, S. C., the honorary degree of Doctor of Laws was conferred upon Dr. Julian J. Chisolm, of Baltimore.

Professor Du Bois-Reymond, of Berlin, has been elected a member of the Hetaireia Epistemonidiæ of Athens, of the Royal Scientific Society of Edinburgh, of the National Academy of Sciences of the United States, and of the Royal Belgian Academy.

The Cartwright Prize of the Alumni Association of the College of Physicians and Surgeons of New York, amounting to $500, will be awarded in June, 1893, for the best essay upon any subject connected with the Science of Medicine. An essay must contain the results of original investigation, and must be the work of a single author. Essays in competition must be sent to the Secretary, Dr. T. M. Cheeseman, 46 East 29th Street, New York, on or before April 1, 1893.

Dr. G. T. Lewis.—At a meeting of the Staff of Wills Hospital, held July 14, 1892, the following preamble and resolutions were adopted:

Whereas it has pleased God to take from the sphere of his earthly calling our brother and colleague, George Thomas Lewis, an Assistant Surgeon of this Hospital, it is

Resolved, That we place upon record our appreciation of his devotion to his duties in this house, of his high sense of honor, and of a culture beyond common.

Resolved, That we offer our deepest sympathy to the family of our late colleague, and that a copy of these resolutions be published in the medical and daily journals.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, JULY 30, 1892. NO. 5.

ORIGINAL ARTICLES.

THE PATHOLOGY OF INTESTINAL OBSTRUCTIONS FOLLOWING ABDOMINAL AND PELVIC OPERATIONS.

BY WILLIAM EASTERLY ASHTON, M.D.,
PROFESSOR OF GYNECOLOGY IN THE MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.

NOTWITHSTANDING the brilliant results that have been attained in modern abdominal and pelvic surgery, there is still much to learn and much to improve upon in our operative technique, before some of the distressing after-results of these operations are prevented, or at least rendered less frequent. Among the most important of these post-operative complications I would include intestinal obstructions. An enormous amount of literature has been written upon acute intestinal obstructions as a surgical affection, and the subject is, very properly, receiving, in our medical societies, the attention it deserves; but as yet little has been done toward solving the problems suggested by bowel-obstruction following abdominal and pelvic operations. It is, therefore, my purpose in this paper to enter into the pathology of these obstructions, and to discuss such views of the subject as my own experience and that of other surgeons my suggest.

In discussing the pathology of bowel-obstructions following intra-peritoneal operations I shall limit myself strictly to those causes dependent upon operative interference and not refer to the causes of acute obstruction from the standpoint of a surgical affection.

I shall classify the causes of post-operative obstructions as follows:

1. Adhesions between the intestine and raw surfaces.
   - *a.* To an omental stump.
   - *b.* To denudations of the pelvic and parietal peritoneum.
   - *c.* To the edges of the vaginal wound following supra-pubic or vaginal hysterectomy.
   - *d.* To a pedicle.
   - *e.* To raw surfaces on the intestinal wall.
2. Paralysis of the intestines.
3. Local spasm of the intestines.
4. Impacted feces.
5. Bands of inflammatory lymph.
6. Adhesions between coils of intestines or between the gut and neighboring parts, due to traumatic inflammation.
7. Kinking or twisting of the intestine due to faulty technique.
8. Including the intestine within the loop of a suture of the abdominal wall or between the edges of the abdominal incision.
9. Slipping of a coil of intestine through a slit or an aperture.

Adhesions Between the Intestines and Raw Surfaces.—By far the greater number of bowel obstructions are due to this cause. A knuckle of gut becomes attached by adhesive inflammation to a denuded surface, a kink results and obstruction of the bowel follows.

Naturally the question will be asked: How do we explain the fact that so few cases of obstruction occur from this cause when there are so many bad pelvic cases requiring the separation of extensive adhesions? My answer is that kinking does not necessarily follow the fixation of a knuckle of intestine, unless the gut adheres in an abnormal position. In other words, if the normal position of a coil of intestine is near the position of the denuded surface, to which it adheres, obstruction will not, as a rule, follow. Furthermore, I believe that many of the cases that die after abdominal and pelvic operations, in which death is ascribed to peritonitis, are in reality undiagnosticated bowel-obstructions.

The following cases present points of great interest in connection with this class of obstructions:

CASE I, reported by Meredith.[1] Section for a double cystoma, with extensive adhesions. *Secondary section* on the eighth day. The peritoneum was intensely red and congested, evidently in the first stage of acute inflammation. "Attention was attracted to a coil of greatly distended small intestine which was badly kinked and obstructed in consequence of the traction exerted upon it by a portion of the ligated omentum, which was closely adherent to its surface." There was no other obstruction. The patient recovered

CASE II, reported by Krug.[2] Section for double pyosalpinx and ovarian abscesses. Adhesions especially extensive behind uterus. Irrigation and drainage. *Secondary section* on the fourth day. Signs of beginning peritonitis. A portion of the descending colon was found glued fast as an angular loop to the posterior surface of uterus. The patient recovered.

[1] London Lancet, 1886, p. 64.
[2] Am. Journ. of Obstet., 1890, xxiii, 1371.

CASE III, reported by Ahern.[1] Section for a large cyst of the right ovary. Adhesions to the brim of pelvis on the left side and to the sigmoid flexure. The raw surfaces, two in number, each half an inch in diameter. No drainage. *Secondary section* on the ninth day. The upper part of the small intestine congested and distended, adherent to the pedicle and to both denuded surfaces. Below the adhesion the bowel was contracted. The coil of intestine at the point of adhesion formed an acute angle. The patient recovered.

CASE IV, reported by Anderson.[2] Section for an ovarian cystoma, adherent to the parietal peritoneum, just above the position of the cecum. *Secondary section* on the twentieth day. A coil of small intestine adherent to the raw surface just above the position of the cecum. Below the adhesion the gut was collapsed, above distended. The patient recovered.

CASE V, reported by Coe.[3] Vaginal hysterectomy. Uterus retroflexed and adherent. An ovarian cyst on the right side, punctured and removed. No ligatures were used. Two forceps were applied to each broad ligament, and two pairs to bleeding-points in the utero-sacral folds. The peritoneal wound was left open. A tampon of iodoform-gauze was applied. At the *section* on the fifth day a loop of small intestine was found adherent to the right edge of the vaginal wound. There was no peritonitis. The gut was distended above the adhesion and contracted below. The patient died on the following morning from shock.

The following cases of "Ileus after vaginal extirpation of the uterus," quoted by Coe, from a paper by Reichel,[4] are of great interest:

CASE I.—*Section* on the seventh day. The lower part of the ileum was attached to the edge of the vaginal wound. The gut above was distended. There was no peritonitis. The patient died on the table.

CASE II.—(Olshausen.)—*Section* on the ninth day. A coil of ileum was found adherent to the edge of the vaginal wound. The gut was bent at an angle. The woman died in twenty-four hours. *Post-mortem*—Diffused peritonitis was found. Two other coils were found attached to the edge of the vaginal wound.

CASE III.—The patient collapsed and died on the eighth day. *Post-mortem*—Coils of intestine were found adherent to the edge of the vaginal wound. The gut above was greatly distended. The large intestine contained fecal matter. The obstruction was, therefore, not complete. There was no general peritonitis.

The following four cases of obstruction consequent upon vaginal hysterectomy are also quoted by Coe:

CASE I.—Blakemann's[5] patient died on the seventh day. *Post-mortem*—The lowest part of the ileum was found adherent to the edge of the vaginal wound. The gut was distended and bent at an angle.

CASE II.—In Leopold's[1] patient death took place on the fourth day. *Post-mortem*—Two coils of intestine were found adherent to the edge of the vaginal wound. The gut was bent at an angle.

CASE III.—Landau.[2] *Section* on the seventh day. The gut was adherent to the edge of the vaginal wound. The patient died on the following day.

CASE IV.—Coe's[3] patient. *Section* on the second day. Two or three coils of ileum were found adherent to the edge of the vaginal wound. Gas escaped per anum after the intestine was detached. There was no peritonitis. Death took place in fourteen hours.

These cases illustrate in a forcible manner the explanations and dangers of obstructions due to raw surfaces. In every one of the abdominal sections the obstruction occurred at a point where adhesions had been separated at the time of operation. Again, in every instance the intestines were fixed in an abnormal position, and at the point of fixation formed a more or less acute angle. In the case reported by Krug, in which he found the descending colon "adherent as an angular loop to the posterior surface of the uterus," we have an instructive illustration of these points. The cases of obstruction following vaginal hysterectomy quoted also demonstrate clearly the cause of bowel-fixation and kinking dependent upon adhesive attachment of the intestine to a raw surface.

The practical operative lesson that all of these cases teach is that in performing secondary section for their relief we should know where to look for the seat of obstruction if we have kept in mind the position of surfaces denuded at the time of the original operation.

Paralysis and local spasm of the intestines; impacted feces.—As the pathology of all these causes of obstruction is the same, I shall discuss them under one heading. First, however, I shall cite some cases illustrating this class of intestinal blocking:

CASE I.—This case occurred in my own practice. The section was made for double pyosalpinx, with slight adhesion. Irrigation was employed, but no drainage. Death took place on the fifth day. *Post-mortem*—The small intestine for a distance of eight inches from the ileo-cecal valve was tightly contracted, causing absolute obstruction. Above the contraction the gut was greatly distended. At the seat of constriction the bowel was red and congested, but no lymph was found. The abdominal cavity was dry. There were no adhesions.

[1] Am. Journ. of Obstet., 1891, xxiv, 326.
[2] London Lancet, 1889, ii, 894.
[3] Am. Journ. of Obstet., 1890, xxiii, 144.
[4] Zeitschrift für Geburtsh. u. Gynäk., Band xv, Heft 1.
[5] Archiv für Gynäk., Band xxv, Heft 1.

[1] Archiv für Gynäk., Band xxx, Heft 3.
[2] Berliner klin. Wochenschrift, 1888, No. 10.
[3] Am. Journ. of Obstet., 1890, xxiii, 469.

CASE II.—Reported by Baldy.[1] Supra-pubic hysterectomy. Extra-peritoneal treatment of the stump. *Secondary section* on the sixth day. Intestinal evacuation and drainage. Death in twenty-four hours. *Post mortem*—The intestines were found free, "but in one or two places they had contracted so as to feel like hard cords."

CASE III.—Reported by Baldy.[2] The section was made for double pyosalpinx. Inflammation of some of the pelvic loops of intestine was found. *Secondary section* on the fourth day. The bowels were enormously distended. Intestinal evacuation and drainage. Death took place in twelve hours. *Post mortem*—"There was nothing abnormal found excepting the peritonitis affecting the coils of intestine in the pelvis. There was a slight adhesion of these coils to one another."

CASE IV.—Occurring in my own practice. The section was made for chronic inflammation of the appendages. Dense pelvic adhesions were found. A *secondary section* was made on the twentieth day. The small intestines were somewhat distended, but there was no evidence of peritonitis or of pus. The descending colon was tightly packed with hard feces from the splenic to the sigmoid flexure. Bands of lymph constricted slightly the bowel near the sigmoid. The patient recovered.

The correct explanation of obstructions due to local spasm or paresis of the bowel will, most probably, be found in a study of the influence of various stimuli upon the nerves controlling intestinal peristalsis. The intestinal walls contain an automatic motor-apparatus—the plexus of Auerbach—which influences the peristaltic action of the bowel. "If this center is not affected by any stimulus, the movements of the intestines cease—comparable to the condition of the medulla oblongata in apnea. The same is true just as in the case of respiration during intra-uterine life, in consequence of the fetal blood being well supplied with O. This condition may be termed aperistalsis. It also occurs during sleep, perhaps on account of the greater amount of O in the blood during that state. All stimuli applied to the plexus myentericus increase the peristalsis, which may become so very violent as to cause evacuation of the contents of the large gut, and may even produce spasmodic contraction of the musculature of the intestine. This condition may be termed dysperistalsis—corresponding to dyspnea. The condition of the blood flowing through the intestinal vessels has a most important effect on peristaltic movements. The continued application of strong stimuli causes dysperistalsis to give place to rest, owing to over-stimulation, which may be called intestinal paresis or exhaustion."[3]

With these facts before us concerning the effects of the absence or the presence of stimulation upon intestinal peristalsis we are better able to explain the pathology of these obstructions. In the first twenty-four or forty-eight hours after an abdominal section, if the case be doing well, the intestines are in a condition of aperistalsis. There are several factors concerned in bringing about this state. In the first place, the preparatory treatment of the bowels with salines, the liquid diet, and the absence of food after section leave the intestines comparatively empty, thus removing the intestinal contents as a factor in stimulating peristalsis. Again, the rest in bed for two or three days before an operation, and the enforced quiet afterward add largely to the absence of intestinal activity. This condition is not only observed after an abdominal section but also after parturition, and in fact in all cases in which the patient is required to lie quietly in bed for some time. The well-known fact that changing the position of a patient in bed relieves the tympany in some cases and favors the downward movement of gas shows the effect of exercise upon intestinal peristalsis.

The causes of operative stimulation of the intestines are exposure to the air, lowering of the temperature, bruising, operative procedures, irritating fluids, septic materials, and a neglect to thoroughly empty the bowels prior to operation. We have found that dysperistalsis and paresis depend upon the same cause, namely, an irritation of the motor center of the intestine, but the intensity and duration of the abnormal stimulation alone determine the difference between the two conditions. For example, simple intestinal congestion would most probably, even if long continued, result in a condition of dysperistalsis, while a severe inflammation on the other hand would cause a state of paresis.

In Cases I and II there was present a condition of intestinal dysperistalsis causing the obstruction. In both cases, at the beginning, this condition alone existed, but subsequently paresis of the gut above the constriction occurred, from the continued effort of the intestine to push its contents beyond the obstruction. The increased amount of gas and fluid in the bowel also aided in producing exhaustion, as these necessarily constituted a source of continued irritation. In Case I the intestinal spasm was probably the result of the congestion that was practically limited to the seat of constriction of the bowel. The cause of this congestion is difficult to determine. Possibly, it may have been due to the irritation of the intestine produced by the pus that escaped when the tubes were delivered, or the bowel may have been bruised during the operation and a traumatic peritonitis was developing at the time of death. In Case II the notes of the post-mortem examination were too superficial to be of

[1] Journal of Gynecology, August, 1891. [2] Ibid.
[3] Landois, 2d Amer. edit., p. 263.

any value in determining the cause of the nodulated condition of the intestines. Case III was clearly one of intestinal paresis due to peritonitis. The adhesions found between coils of intestine after death were evidence that the peritonitis that had existed at the time of the operation had continued.

Case IV is of especial interest. The patient had a bowel-movement in forty-eight hours and everything was doing well until she fell out of bed in her sleep on the third day after operation. Now, what had happened to bring about obstruction from fecal impaction after this accident? I believe that the fall caused a traumatic peritonitis, which resulted in paresis of the colon, and while the bowel was in this condition fecal accumulation took place. After the intestine had regained its normal activity it was then unable to empty itself, on account of the great amount of fecal matter that had collected. In addition to this want of power in the gut there was also more or less constriction from bands of lymph at the sigmoid flexure, which rendered the downward passage of the feces difficult.

Bands of inflammatory lymph. As the result of intra-peritoneal inflammation following abdominal and pelvic operations, lymph is poured out upon the intestines, and coils of the gut become more or less adherent to each other. As a rule, no bad results ensue, but if the adhesions destroy the normal relations between the coils, or if a knuckle of gut is constricted by a band of lymph, then kinking or strangulation follows. These obstructions do not manifest themselves early after operation, because, usually, no serious interference with the movement of the intestinal fluids occurs until the bands of lymph begin to organize and contract. Montgomery[1] reports an interesting case of volvulus caused by bands of inflammatory lymph. Five weeks after the original operation for peritonitis, symptoms of obstruction appeared, associated with fecal vomiting. "The intestines were found matted together, so that over a yard of small intestines had to be forcibly liberated from extensive adhesions. The muscular coat was torn through at a number of points; a distinct twist was found in the small intestine, which was readily overcome by separating the bands of adhesions." The patient made a good recovery.

Adhesions between coils of intestine or between the gut and neighboring parts, due to traumatic inflammation. These adhesions have always been a subject of great interest to me. They result from an irritation of the serous membrane, caused by the exposure of the intestine to the air, to lowering of their temperature, to handling or to necessary manipulations or operative procedures. Adhesions of this class are, in my experience, a necessary sequence of all intra-peritoneal operations. In fact, they are, I might say, the opprobrium of abdominal surgery, for it must, indeed, be rare to have an abdominal operation not followed by more or less fixation of the viscera.

In my experimental work upon the lower animals this fact has time and again forced itself upon me. For example, I have established a lateral anastomosis in a perfectly healthy dog without resection. At the time of operation not more than ten inches of the bowel were exposed through an incision in the abdominal wall, less than two inches in length, and every precaution was taken in the operative technique. Yet, notwithstanding these facts, when the animal was killed at the expiration of three weeks, after making an uninterrupted recovery, the intestines were so matted together that I was with the greatest difficulty able to separate the seat of anastomosis from the adherent coils of gut. This has been my experience without exception in all work upon the lower animals.

I have seen numerous illustrations of these traumatic adhesions in the human subject during secondary sections or upon post-mortem examination. In the case of a woman at the Philadelphia Hospital, who had died three weeks after a supravaginal hysterectomy, from disease of the kidneys, the intestines were found to be extensively matted together. The hysterectomy was a simple operation, uncomplicated by adhesions; the abdominal incision was small and there was no exposure of the intestines; yet, after death, extensive fixation of the gut was found.

It is a common experience, in performing secondary sections, to find the gut or the omentum adherent to the parietal peritoneum at the site of the original abdominal incision. This fact is so well recognized that great care is always taken in reopening the abdomen to cut to one or the other side of the cicatrix, in order to avoid the danger of wounding a knuckle of adherent gut. Fortunately, traumatic adhesions are, as a rule, not followed by fatal results, as they do not cause kinking or twisting of the gut. They do, however, not infrequently cause remote trouble, by giving rise to colicky pains and a greater or less tendency to constipation.

Kinking or twisting of the intestine, due to faulty operative technique. These obstructions are not the result of adhesions, but occur after anastomotic operations upon the alimentary canal or after the repair of bowel-lesions. For example, a coil of intestine may be kinked or twisted by placing it in

[1] Philadelphia Hospital Reports, 1891.

an abnormal position in establishing an anastomosis; or, again, the bowel may be torn transversely while separating adhesions in the course of an operation, and if the opening be large, suturing the tear may result in fatal obstruction from kinking. Tears in the wall of the bowel, longitudinal to its long axis, even if extensive, may be safely closed with sutures, but a large transverse opening into the gut will, if sutured, almost certainly cause a kink.

Including the intestine within the loop of a suture of the abdominal wall or between the edges of the abdominal incision. At first sight these causes of bowel-obstruction may appear to the surgeon as being extremely unlikely or at least very rare. Yet, if we call to mind our own operations, as well as those of other surgeons, I think all of us will be struck by the fact that such an accident is liable to occur when the abdominal incision is closed. There is but little danger, I admit, of including a loop of intestine when the sutures of the abdominal wall are introduced, as the abdominal contents are protected by a gauze pad or a flat sponge, but it is when they are tied that the accident is likely to occur. After the pad or the sponge has been removed the intestines come in direct contact with the loops of the sutures and press up, more or less, between the edges of the abdominal wound. Naturally, therefore, it is almost impossible for the surgeon to know positively that a portion of the gut has not been caught where the sutures are tied. Of course, if the gut has been fastened to the abdominal incision, no immediate results will necessarily follow, unless the lumen of the intestine has been obliterated, leakage occurs, or kinking takes place. Consequently, in the majority of instances we are not aware that such an accident has occurred. Or, again, if the accident be followed by a fatal result, its true nature cannot be determined except by an autopsy.

Shively[1] reports an extremely interesting case in which death occurred five or six years after an ovariotomy as the result of obstruction of the bowel, the remote sequence of the fixation of the intestine to the abdominal incision. After the original operation the patient was always "greatly troubled with constipation and frequent attacks of colic." She was obliged to use powerful cathartic pills to keep her bowels open. On August 8, 1883, she was taken ill. "She said she was sick with an attack of colic." August 11th, fecal vomiting occurred and was followed by death. *Post-mortem*—"At the lower end of the line of the belly-cut a discolored spot, half the size of the hand, was seen. The bowel was here adherent. There were also extensive adhesions of the intestines to the sides and posterior wall of the abdomen, thus preventing the appearance of tympany. The intestines and cavity nearly everywhere gave evidence of former inflammation; also a portion of the ileum (eighteen inches above the cecum) was adherent to and incorporated with the cicatrix corresponding to the lower angle of the original wound. Around the short portion between this and the cecum a loop of small intestine was twice twisted, forming a kind of knot and a complete and effectual barrier to the passage of the intestinal contents."

Slipping of a coil of intestine through a slit or aperture. This accident may occur from the following causes: 1. As a result of adhesions. For example, a band of inflammatory lymph may be so attached that an aperture is formed; or, again, a coil of the intestine or the mesentery may adhere and form a loop through which a knuckle of gut may slip. I witnessed an autopsy upon a patient who died after an abdominal section, where the omentum was found adherent to the parietal peritoneum by two distinct attachments, thus forming an opening through which the intestine might readily have passed. An instructive point in this case lies in the fact that the adhesions were caused by two omental stumps, which were left after the omentum had been ligated for adhesions in the course of the operation.

Larkin[1] reports a case in which death resulted from an obstruction following a jejunostomy. The original operation was performed for carcinoma of the stomach, but in less than three months afterward jejunostomy was performed on account of the development of obstructive symptoms. The patient then did well for about two months, when intestinal obstruction again occurred, and death resulted. *Post-mortem:* "There was a firm adhesion between the jejunum and the incision in the abdominal wall made in performing the gastro-enterostomy. The portion of the jejunum taken in the jejunostomy was only two to three inches above this adhesion. The piece of jejunum between these two attachments to the abdominal wall formed a little loop, and between this loop and the parietes the upper segment of the jejunum had slipped. It was firmly nipped. The intestines above were greatly dilated, and ruptured just above the seat of constriction. The intestines below were contracted."

2. From defects in the method of dealing with tears or incisions through the mesentery. Thus, if the mesentery be torn during the separation of adhesions, and the tear is not closed, or its flaps are not well sutured after a resection of the bowel, a coil of intestine is liable to slip into the opening and become nipped. 3. The slipping of a coil of intestine through the vaginal wound, after complete removal of the uterus. 4. A knuckle of gut pushing its way

[1] N. Y. Med. Journ., 1884, vol. xl, p. 292.

[1] London Lancet, 1891, ii, 1222.

through the intestinal loop formed in establishing a lateral anastomosis, without resection. 5. From fixation of the gall-bladder to the abdominal incision. 6. From openings made through the transverse meso-colon and the great omentum, to facilitate the attachment of the bowel to the stomach in performing gastro-enterostomy. In a case of carcinoma of the pylorus in which this was done the post-mortem examination showed that "almost all of the intestines were in front of the great omentum, having prolapsed through a hole in the transverse meso-colon and great omentum. There had passed all of the jejunum and ileum to within four inches of the ileo-cecal valve."

2011 WALNUT STREET.

HERNIÆ, OPERATIVE AND INOPERATIVE.[1]

BY THOMAS H. MANLEY, A.M., M.D.,
OF NEW YORK.

As hernial protrusions through the lower abdomen are very common infirmities in civilized human beings, and, as they are always a source of inconvenience and physical discomfort, besides not infrequently endangering life, surgeons, since the earliest times, have actively occupied themselves with most commendable zeal with divers expedients that might effect a radical cure, or to place them in such a position as would conduce to the greatest safety and comfort.

Every sort of mechanical contrivance has been resorted to for the cure of hernia, by the traveling charlatan, as well as by many eminent operators, at one time castration being resorted to, at other times vitriol and caustics, the potential, and others, the steel clamp, suture of gold, "*point doré*," etc. Ségond,[2] in his admirable treatise on hernia, informs us that, for several centuries, various operations for the radical cure of hernia had attained considerable popularity, but all, in time, have fallen into ill-repute and been condemned, to be again revived. From the full and graphic description given by this author we can see that the methods and technique of operation in by-gone times were, indeed, manifold and varied, and that so thoroughly and completely have the ancients gone over the field that but little has remained for moderns to improve on. Hence it is, that the majority of modern hernial operations bearing the names of various surgeons are not new in any sense, but have each and all, with few exceptions, been performed many centuries ago.

The cardinal object in view, in all cases and in all times, has been the same. The most noteworthy characteristic of the attitude of surgeons toward hernial operations has been the tendency to extremes. As recently as twenty years ago the operation for the radical cure of a reducible or incarcerated hernia was not countenanced or permitted. Now, the opposite extreme prevails, not here in America alone, but in all the principal cities of Europe. Every sort of hernia, regardless of condition, situation, age, sex, etc., is regarded as adapted for active surgical intervention. No operation yet devised will, however, always prove curative. Surgical methods will, nevertheless, permanently cure a certain proportion; properly carried out, they will relieve nearly all. In many, an operation will effect no improvement, and in certain non-strangulated herniæ the mortality attending operation will always be great.

With a view of reaching a middle ground, and defining those cases in which surgical operation is justifiable, and discrediting those in which we should refuse to interfere, these notes are written.

A FEW GENERAL CONSIDERATIONS ON OPERATIVE HERNIA.—There are always certain general considerations that must never be lost sight of in all cases. We should possess, as a ground-work, a thorough knowledge of the natural history of hernia, its complications and infinite varieties, of what we expect from Nature's unaided powers, and what benefit we may derive from an intelligent, tentative therapy.

In every case in which a radical cure is undertaken, we must consider well the consequences, for not a few may suffer after operation from a relapsing hernia, which is often much more unmanageable than the primary disorder; we should, besides, invariably warn the patient of this possibility.

Dr. William T. Bull,[1] of New York, in a recent brochure, claimed that relapses are so frequent after surgical management that the term "radical cure" should be abandoned. Paul Ségond, in his work published ten years ago, took a similar position, claiming that any operation may kill—*peut tuer*—and that none is ever justifiable in hernia "except in those in which the dangers from delay are in direct proportion to those entailed by surgical intervention, and then only when all other expedients have failed." Félizet[2] takes an opposite position, though he distinctly avows that the surgeon should never permit himself to be swayed in these cases except from humane impulses and in cases that will yield to none but operative measures. He says: "While anesthetics have rendered the most painful and tedious operations painless, and rigorous antisepsis has made infection impossible, neither has changed the moral of our art; hence the scalpel should be taken up early in hernia, which becomes

[1] Read before the Section on Surgery and Anatomy of the American Medical Association, at Detroit, June 9, 1892.

[2] Cure Radicale des Hernies. Traité. Paul Ségond.

[1] Trans. Amer. Surg. Assoc., 1890.

[2] Félizet: Opér. Herniales chez les Enfants, etc., p. 17.

progressively worse with the advance of age." As all herniæ operated on are radically cured, and several remain permanently so, it seems absurd to ask us to disregard the evidence of our own senses.

No sort of surgical operation can, or ever has, perfectly reconstructed anything. We may relieve a man of a dislocation, fracture, fistula, or stricture, but we have not always removed the causes that led to them or restored anything like perfection. Careful dissection of a hernia will discover defective development; a want of symmetry or uniformity in the anatomic structures in the area of the breach. Hence, he who pretends or claims for any operation, no matter how skillfully performed, that it will ever accomplish anything more than an improvement in the way of confining the viscera, or so placing them that they will give a minimum of inconvenience, trespasses too far on the credulity of his professional brethren, and makes an unsupported assertion.

The radical cure of hernia, then, is an accomplished fact, which must remain, with the same qualifications as when the words *radical cure* are employed in other operations. But, says one, the operation "may kill;" so may the act of vaccination give rise to mortal gangrene or to tetanus, or the extraction of a tooth be attended by instant death. Dr. Bull himself admits that the mortality in operations for radical cure is "practically *nil*." It is interesting to know the present attitude of M. Paul Ségond, after the lapse of ten years[1] (January, 1892). He says: "I now regard the operation for radical cure of hernia an excellent one, and I perform it for every species of the deformity." That the operation for radical cure of hernia has secured for itself a legitimate position in the field of surgery is best attested by the fact that to-day in every civilized country of the world it is being performed on a large scale, with most gratifying results; but it has its limitations. In properly selected cases, it is a veritable boon. These are rare. In many the operation is little better than a barbarous mutilation. It is not, then, in every case a cure-all, but an expedient to be employed only in aggravated cases when other means fail.

Where must the line be drawn between the selected and the rejected? Infantile or congenital hernia is, in the majority of cases, spontaneously curable. Accordingly, only those that increase rapidly in volume, are painful, incoercible, and liable to strangulation, should be operated on. We may examine into the etiologic, anatomic and clinical factors of each, so that a grouping and classification may simplify their study and enable us to reach logical conclusions:

1. Hernia under the tenth year.
2. Hernia in advanced age.
3. Male hernia.
4. Female hernia.
5. Congenital hernia, proper.
6. Acquired hernia, so called.
7. Laparotomy hernia.

REGIONAL DIVISION.

1. Complete inguinal hernia.
2. Incomplete inguinal hernia.
3. Inguinal hernia in the female.
4. Crural hernia in the male.
5. Umbilical hernia in the male.
6. Umbilical hernia in the female.
7. Ventral hernia in both sexes.
8. Obturator, lumbar and perineal hernia.

DIVISION ON A BASIS OF THE MORBID ANATOMY AND PATHOLOGY.

1. Simple hernia in general.
2. Incarcerated hernia.
3. Strangulated hernia.
4. Enterocele.
5. Epiplocele, or entero-epiplocele.
6. Hernia complicated by pathologic changes in the sac.

Infantile hernia is very common in the male sex, and is attributable to a mal-descent of the testis; phimosis; or partial atresia of the urethra. When the testis in its descent contracts adhesions with the omentum or the intestine, and pulls it down into the scrotum, we have the type of hernia designated by *anatomists* congenital; it has no independent peritoneal envelope. This is a stubborn, unyielding type, which no apparatus can cure.

True umbilical hernia is often seen in babies, particularly females. With few exceptions it disappears before the infant walks.

In the inguinal hernia of the female, which cannot be reduced or controlled, a prolapse of the bladder, ovary, or uterus itself, should be carefully looked for. Dr. Barker,[1] of Saginaw, Michigan, has reported a case in which he discovered and removed the uterus in an inguinal hernia in a young woman. Boyer[2] cites the case of a young woman who was impregnated and carried her child to full term in a hernial sac. The same author reports the excision of a six-ounce urinary calculus, through a prolapsed bladder, in an inguinal hernia. I have myself within the past year removed an ovary adherent to an extended intestinal coil in the case of a young lady who had been unavailingly treated by truss-support previously to operation. It was almost needless to say that surgical operation is demanded in all very complicated cases.

[1] De la Valeur de la Cure Rad. des Hernies au Point de Vue du Resultat Definitif.

[1] Am. Journ. Gynecology, Oct., 1891.

[2] Boyer: Malad. Chirurg.

Unless in very exceptional instances, the hernia of the aged should not be interfered with. At this epoch of life, the bloodvessels have taken on degenerative changes, and, besides, the adhesions of the sac with the cord have undergone such fibrous induration that they are separated with great difficulty. Strangulation is an unusual event in very advanced life.

Sexual peculiarities complicate hernial operations. The presence of the spermatic cord is an embarrassing element in the inguinal operation in the male. To so close in the inguinal portals as to prevent relapse, without exercising undue compression on the spermatic vessels, is the ideal to be secured.

HERNIA IN THE FEMALE.—Hernia being less frequent in the female than in the male, we are less concerned with its management; nevertheless, hernia in the female is often painful, and when strangulated, attended with great mortality. The speediest and safest method of relieving it should engage our most serious study.

For anatomic reasons the inguinal type is uncommon in females, crural hernia being quite frequent. Since laparotomy has become a current operation, we are frequently seeing eventrations of the viscera, which make their way through the weakened or separated *fascia propria* into the subcutaneous tissues. When these are discovered, they should be treated by proper pressure-supports; but when they have attained great volume, surgical intervention may be considered.

At a late meeting of the British Medical Association, Lawson Tait described a method of curing hernia by performing laparotomy and reducing the protrusion from within. This is not a bad scheme if a patient has a hernia in connection with an abdominal growth—one taking advantage of the opening to remove the tumor, to introduce the fingers and replace the viscera. Except under these circumstances, it is apparent to every one that this procedure has no place in the surgery of hernia.

CONGENITAL HERNIA.—As a rule, it will be observed, on examining the scrotum at birth, that it is out of proportion in volume to the rest of the body; that there is often a peculiar conical contour of the spermatic cord on one side or the other, giving an impression to the eye and touch of a hernia. My own impression is that in the vast majority of male infants the funicular process is not completely closed for varying periods after birth. In those in whom there are no impediments to the emunctories, or who are not taught to walk too early, it will close during the first year; while on the contrary, when an opposite condition prevails, a hernia may present itself. Nature is generally competent to deal with this state of incomplete evolution. Cases are sometimes encountered, however, in which at birth the hernia is of considerable size, which a truss cannot comfortably control. Opinions are at variance as to the course to pursue with them. My own practice with this class has been to immediately operate and then have the child for a while after wear a truss. I have operated on such a case on the fifteenth day.

ACQUIRED INGUINAL HERNIA, SO CALLED.—Most authors are accustomed to divide the causes of hernia into predisposing and active. My experience has led me to regard hernia of every description as being in every instance an infirmity, invariably attributable to predisposing causes, and to those solely and alone; to congenital or ante-natal conditions, the so-called active cause being but an incident, and nothing more, bearing about the same relation to the hernia that a local injury does to the evolution of a carcinomatous growth. On rigid scrutiny, it will be found that, in the vast majority of cases seen in late life, the patient either had hernia in childhood or had a sense of weakness at the seat of trouble; that it was undiscovered, left alone, or treated by the truss and disappeared long before the child came to the age of reason, and hence he has no recollection of it.

Thomas Bryant, in his excellent *Treatise on Surgery*, tells us that nearly all herniæ disappear before the tenth year; but that many of them return again in adult life. It is very probable that, in many of those cured early in life, only the viscera return, the sac remaining; the neck contracting, so that in the event of a severe strain, when much effort is demanded, the orifice suddenly gives way, the viscera sliding downward into the pouch, which awaits their advent. This makes it clear that, while tentative methods serve a most useful purpose in early life, they do not nevertheless effect an enduring cure, as but part of the hernia is returned.

The treatment of acquired, or rather consecutive inguinal hernia, must be governed by circumstances, whether strangulated, threatened with strangulation, of great volume, complicated, etc. It may be said, however, in a general way, that, when they can be comfortably controlled by a truss, no operation is called for in men. In women, the case is somewhat different, for in them we have no spermatic cord to annoy us, and obliteration of the canal of Nuck is comparatively a simple matter.

LAPAROTOMY HERNIA.—It is said that from 25 to 30 per cent. of women upon whom laparotomy has been performed suffer later from hernia through the line of incision. These cases constitute by all odds the most unmanageable and melancholy phase of the infirmity. Anatomically, they bear a close resemblance to the immense exomphaloceles met with in child-bearing women.

Like the latter, the former have no serous invest-

ment, and tend to constantly increase in size. I have seen the greater part of the floating viscera make their way out of the cavity of the abdomen into one of these adventitious pouches, effecting a practical eventration of the intestinal canal.

Operative interference is not, as a rule, admissible in these huge masses, and should not be performed except in the event of impending strangulation. When we do operate, our interference should be limited to the relief of the constriction, leaving the incarcerated mass in its newly-formed abode.

HERNIA IN THOSE SUFFERING FROM CONSTITUTIONAL DISEASE.—It may be asked if a patient present himself with a painful, incarcerated inguinal hernia, who is suffering from a constitutional disease, are we justified in advising radical measures of relief? It is well known that many chronic maladies run a very long course, and that many pronounced incurable are often recovered from. This is notoriously the case in renal, hepatic, and pulmonary disorders. With these there is no justification, however, for operative interference, except in the presence of desperate symptoms arising through the hernia. It is a curious fact, that I have never met with a painfully complicated hernia in invalids. Certainly, strangulations are very seldom or never met with among them.

REGIONAL DIVISION OF HERNIA. COMPLETE INGUINAL HERNIA.—As the designation indicates, the hernia completely clears the rings and the entire canal.

It would seem that the readjustment of the dislocated viscera, their return by the path that they traversed, and their retention, should not be a difficult undertaking. We may remove the sac, if there is one; approximate the pillars and secure adhesive inflammation. There has, however, been an undue lengthening of the mesenteric ligament; perhaps, there is an excess of intestine; or the peritoneal cavity is intolerant of the returned viscus, when our union of the parts may in a while give way, and down comes the hernia, in a worse position than ever; or as we wall back one, another descends on the other side. This species, the complete inguinal, is the most easily managed of all herniæ. Hence, only in the event of a condition rendering life miserable or endangering it, should we speak of a kelotomy.

INCOMPLETE INGUINAL HERNIA.—This form of hernia seldom gives any trouble, as when its sac has contracted solid adhesions it so firmly blocks the canal that nothing can pass it. Moreover a truss is seldom needed for its support. These bubonoceles, however, may contain within them an undescended testicle or a neoplasm; besides, by pressure on the spermatic vessels, they often induce varix of the spermatic veins or hydrocele, impotence or neuralgia of the testis. Hence, when these sequelæ arise we should not hesitate to operate, though we must not forget that for obvious reasons the permanent results are not always as satisfactory as with other types of hernia.

DIRECT INGUINAL HERNIA.—The diagnosis of direct inguinal hernia is a physical impossibility. True, by the aid of the scalpel and a good light it may be recognized, but not by any other means. My conviction is that it is a very rare pathologic entity. In more than a hundred operations I have met with but one case that I was quite sure was of this type. Indeed, in these old inguinal herniæ, in which the canal becomes obliterated and the hernial rent is simply a large hole in the aponeurotic wall, it is not, by any means, even on dissection, that the precise, original type can always be determied. It is quite impossible. Anatomists will tell us that we should readily discriminate one from the other by their coverings, the relations of the vessels, etc. But in old herniæ we are not dealing with normal structures. Happily, it is of little consequence in treatment, whether we are dealing with the direct or indirect, except in operating for strangulation, when we are warned that, in the direct variety, the mass comes down to the inside of the epigastric artery. Anatomic refinements should not concern us, when we proceed to operate, after proper preparations. As an immense hiatus is left between the pillars after the excision of the tendinous envelope of a direct hernia, a permanent cure will seldom follow the radical operation.

INGUINAL HERNIA IN THE FEMALE.—Inguinal hernia in the female is as rare as femoral hernia in the male. For anatomic reasons already considered, their frequent, painful complications, their simplicity of cure by surgical operation, render them a peculiarly suitable class for radical cure. Dr. Perry Schoonmaker, of New York, recently exhibited an infant a year old which had had unmanageable inguinal hernia. He opened the sac, removed a prolapsed ovary, thereby effecting a permanent cure. To young women about to be married the operation of the radical cure is in every case to be recommended, for the purpose of removing an unsightly blemish and affording security against the dangers of a subsequent strangulation.

CRURAL HERNIA IN THE FEMALE AND IN THE MALE.—When we carefully study the anatomy of crural hernia in the female we can appreciate the many difficulties in the way of rendering permanent a radical cure. Hence it is that it is only with the minority of them that sanguineous methods should be invoked. The great barriers in the way are the blood-trunks of the lower extremity that occupy the femoral arcade. Their periodic enlargement in the child-bearing woman, with the possibility of

dangerous compression through the cicatricial contraction after incision, usually interdicts any attempt in the way of radical cure. Truss-support is preferable in all simple, uncomplicated cases of femoral hernia in the female. We must be guided by the same general principles here as in the crural hernia of the male, though it should be noted that owing to the diversity of function in the female, the prospects of a permanent cure following operation in the male are better than with her.

UMBILICAL HERNIA, EXOMPHALOCELE, MEDIAN-VENTRAL HERNIA.—Umbilical and median-ventral herniæ are not very uncommon in child-bearing women. It is unnecessary to remark that the umbilical hernia of nursing infants rarely requires any special treatment.

If in women these herniæ attain a great volume, or if their overlying tunics ulcerate, giving rise to much pain and often to free hemorrhage, they become a very troublesome condition to manage. Fortunately the greater part of those of massive size seldom occasion much inconvenience, except by their weight.

Anatomically, but few of these extrusions can be regarded as genuine exomphaloceles, for their escape is but rarely through the unclosed umbilical ring, but rather on either side, above or below it. For this reason it is unusual to find the round ligament of the liver or the urachus prolapsed with them. This type of hernia has no independent sac; hence, as it escapes from the abdomen, the viscera wander in every direction and form intimate adhesions with everything with which they come in contact, so that their vascular supply is ultimately rather from the vessels in the tissues in which they are recently lodged, than through the mesenteric trunks. As, owing to their volume, their state of incarceration and convenient proximity to the solar plexus, the complete removal of these herniæ is a procedure attended with a great mortality, none but those presenting symptoms of strangulation or those that consist of omentum alone, are appropriate for operation. In all cases of sudden intestinal obstruction, the navel should be carefully examined for hernia.

STRANGULATED HERNIA.—In the majority of cases, perhaps, strangulated hernia may be reduced by taxis. It would seem, however, that in our time, when it can be radically cured by an operation attended with little or no danger to life, when performed early, every case of this description should be promptly operated on. In those suffering from renal or pulmonary disease, we may, in all cases, substitute cocaine analgesia for pulmonary anesthesia. This I have repeatedly demonstrated with most gratifying results.

INCARCERATED HERNIA.—The morbid anatomy of incarcerated hernia furnishes us with an excellent illustration of the very best work that unaided Nature can perform in the way of protecting an organ against an accident which an imperfection or incompleteness in her own processes has caused.

An incarcerated hernia maintains an independent existence, mainly drawing its sustenance from extraneous parts. Those of minor dimensions and devoid of painful complication should not be disturbed, unless they show a tendency to increase in size, when a truss may be worn. With the larger and more ungovernable variety, with occasional symptoms of obstruction, we must interfere, but only when other measures of relief have failed.

EPIPLOCELE.—An epiplocele, a purely omental hernia, is that variety which always offers the best prospects of cure by operation; for, by the excision of the adipose tissue the cause of the tumor is removed and intra-abdominal pressure is not increased. I have never seen a relapse after operation on this class, and believe in general, that unless there be some complication, they should always be dealt with by radical measures.

A CASE OF CIRCINATE PAPULO-ERYTHEMATOUS SYPHILIDE WITH PSORIASIS PALMARIS SYPHILITICA.[1]

BY G. FRANK LYDSTON, M.D.,
OF CHICAGO,
PROFESSOR OF THE SURGICAL DISEASES OF THE GENITO-URINARY ORGANS AND SYPHILOLOGY IN THE CHICAGO COLLEGE OF PHYSICIANS AND SURGEONS.

NUMEROUS observers have directed attention to a comparatively exceptional variety of papular syphiloderm, occurring in the secondary periods of syphilis, which assumes a form always closely resembling, and frequently precisely identical with, ordinary tinea circinata. Several beautiful examples of this form of eruption have come under my observation, the case shortly to be described being the most typical and clearly outlined of any that I have seen. One of the first cases that I encountered in private practice occurred in a young man who presented himself for treatment for several patches of what appeared to be ordinary ringworm, one of which was located upon the right cheek, and the other upon the opposite side on the neck. Decided pigmentation of these patches made me at once suspect that they were syphilitic, and I therefore made a careful general examination, with the result of discovering general lymphatic engorgement, a characteristic sore-throat and several mucous patches upon the tongue. Upon the roof of the mouth were several distinctly circinate, elevated, reddish patches, one of which presented the arc of a circle representing about one-half the size of a silver

[1] Read in the Section on Dermatology and Syphilography of the American Medical Association, June 9, 1892.

quarter; the other, a perfect circle, of the size of a silver dime. The borders of these circular patches were elevated and of a brighter red color than the normal mucous membrane. The center of the patches was normal or nearly so, the membrane possibly being rather paler than usual. The subsequent history of the case and its behavior under treatment confirmed the original diagnosis of circinate syphilide.

The case at present under consideration is a very interesting one, in that we have two varieties of lesions representing two different stages of syphilis and occurring within a short time after the inception of the disease.

The patient, a woman, twenty-four years of age, presented herself at my clinic at the suggestion of one of my brother-physicians. Four months before coming under my observation, she contracted a chancre. This was followed by a bubo and, in

FIG. 1.

about two months, by what, from her description, was evidently a roseola, interspersed with distinct papular syphilodermata. The first generalized eruption had, according to her story, disappeared, with the exception of some of the papules upon the face and upon the palms of the hands. These lesions had not only persisted, but had increased in number and prominence. Shortly after the appearance of the first euption, several mucous patches in the mouth, and sore-throat developed. The woman had drunk considerably and admitted the cigarette-habit, this circumstance amply explaining the obstinacy of the lesions under treatment and the persistence and severity of the lesions of the mucous membrane of the mouth and throat. There had been, she stated, considerable falling of the hair. Within three or four weeks prior to appearing at the clinic the woman stated that there had developed a generalized eruption on the face, which she thought was erysipelas, and which she feared would extend all over the face. On examining the patient, I found upon the face a number of distinct, circinate papular syphilodermata of varying size and form. Some of these presented the form of distinct circles; others were more or less crescentic in shape, and several of them were fused together somewhat like a figure 8. Upon the back of the neck, just at the roots of the hair, there were two quite large crescentic-shaped lesions, one of which was nearly as large as half the circumference of a silver dollar.

FIG. 2.

Upon each side of the face, beginning in front of the ear, which it involved, was a syphilide considerably larger than a silver half-dollar, the periphery of which was distinctly raised, the center being perfectly healthy. A peculiar feature of these syphilides was the symmetry and their conformation in a general way to the outline of the ear itself. The elevated portions of all of these lesions were more or less scaly. The nose, upper lip and chin were the seat of erythema, with abrupt edges, slightly, if at all, elevated above the surrounding skin. This erythema underlay a number of the circinate syphilides and extended out upon the cheeks and upwards over the eyebrows for a short distance. This erythema does not, I regret to say, show in the appended illustration. The

mouth and throat were decidedly involved. The soft palate presented a distinctly circinate patch; the fauces were congested, and upon the right side an ulcerating mucous patch was observed. The tongue was the seat of several inflamed mucous patches. There was pronounced syphilitic adenopathy. The palms of the hands presented as fine an example of psoriasis syphilitica as one would care to see. This psoriatic eruption, as will be seen by the appended illustrations, was quite extensive and plainly marked. Under rigorous mercurial treatment, with regulation of the patient's habits, with local applications of mercuric chloride and tincture of benzoin, the facial eruption was speedily removed; that upon the palms was quite stubborn, persisting for several weeks after the erythema and circinate lesions had practically disappeared.

The circinate papular syphilide has been described as syphiloderma papulosum circinatum by Dr. George H. Fox[1] and Dr. I. E. Atkinson.[2] Jullien[3] describes it as *syphilide en cocarde.* Kaposi[4] also describes *syphilis cutanea.* Bumstead and Taylor[5] have described a flat variety of the papular syphiloderm, which becomes elevated as a distinct ridge at the periphery or as an annular crest, of a dull yellowish color, at the periphery of an ordinary papule. These authorities also state that as papules retrogress, especially in late syphilis, the center of the lesion may be absorbed first, leaving a more or less scaly ring, which is itself firmly absorbed.

Professor Atkinson's paper is illustrated by a beautiful example of the disease, occurring in a young negress, and is one of the clearest and most accurate descriptions of this peculiar form of syphiloderm. To this paper I am chiefly indebted for the description of the lesions.

Atkinson states that the lesions of syphiloderma papulosum circinatum develop esssentially from the annular or circinate arrangement of the papulotuberculous lesions, so frequently seen upon the skin in late secondary and tertiary syphilis, each group representing a number of distinct and separate lines arranged in a circular form; whereas the circinate papulo-syphiloderm invariably begins in a single lesion (a papule), from which the lesion spreads as the primary papule itself disappears. Dr. Atkinson has had exceptional opportunities for observing negro patients, and states that this peculiar syphilide is especially frequent in them. I have had no opportunities to form an independent opinion upon this subject. Atkinson's description is as follows:

"In its milder and more limited development it affects preferably the face and neck, but when extensive, no part seems to escape it: back, breast, belly, thighs, arms, hands become invaded. Where the onset is acute and the eruption copious, fever may be present, and the lesions may form with almost the rapidity of those of the eruptive fevers. The lesions appear as bright or dusky-red discs, but little elevated in comparison to their breadth, and varying in size from that of a small pea to a diameter of two centimeters and more. Some remain without further development, or within two or three days begin to desquamate in thin, fine scales, beginning at their peripheries. This desquamation exposes either a dry, smooth, reddened, and flattened elevation, or a moist surface which speedily forms a thin straw-colored or brownish scab, flattened and depressed toward the center. After some days, these scabs fall off and leave pigmented spots. While these changes are going on in some lesions, others exhibit a more curious but less intense activity. While the peripheries of these papules show a scanty, fine desquamation, their central portions gradually sink down to the level of normal skin, and their borders extend centrifugally. A short interval suffices to convert the former papules into unelevated central areas, surrounded by narrow but abrupt borders of elevation, forming continuous rings of infiltration and continually throwing off fine scales. Rarely, the eruption may be limited to a half-dozen of these spots, irregularly scattered over the face, neck and shoulders.

"The color of the central area will now be of a dusky-red color, slowly fading to a duller hue; while the border will be of a darker and more characteristic tint. The central area now continues to grow larger, and by the extension of the slightly elevated border, all resemblance to the original papular lesion is lost. Instead, there is presented an appearance strongly suggestive of severe tinea circinata, which, indeed, it may so closely simulate that, without the previous knowledge of the patient's syphilis, the lesion may, upon superficial examination, be mistaken for ringworm. The elevated border will present a continuous narrow line of a slightly beaded appearance, and will throw off a fine branny desquamation. The central portion of the patch will usually resume its normal surface and thickness, but there will remain the deeper pigmentation; while its size will increase, and its shape will undergo modifications, altering the originally circular outline. In negroes, the ordinary pigmentation of the patches will be replaced by a simple increased intensity in the normal darkness of the skin.

"These patches may reach a diameter equal to that of a half-dollar, and by the confluence of several, great irregularity of extent and outline may be attained. I have never seen any patch larger than the size just mentioned, nor do I know to what extent they may proceed if uninfluenced by treatment. It is likely, however, that spontaneous involution would destroy the patch before a much larger extent could be gained. In many patches a curious recrudescence occurs in their centers, whereby a new papule forms, and immediately proceeds to follow the course of its predecessor in extending periphe-

[1] Photographic Illustrations of Cutaneous Syphilis.
[2] Journal of Cutaneous and Venereal Diseases, Vol. I, No. 1.
[3] Maladies Vénériennes.
[4] Die Haut und der angrenzenden Schleimhaut.
[5] Treatise on Venereal Diseases.

rally, though, it is true, the extending border rarely forms a complete circle, but rather a segment of greater or less size, and not so sharply defined as the first one. Sometimes a third papule may develop within the pigmented inclosed space, and proceed to extend in the same centrifugal manner.

"But small provocation is required to convert these lesions into mucous patches, and when the axillæ or groins are invaded they readily become such. In a young woman, a negress, syphilitic eighteen months, the papular circinate syphiloderm developed within the buccal cavity, where the lesions, immediately becoming mucous patches, adopted the centrifugal extension, the narrow border assuming a pale, opaline aspect. Unlike the usual course of syphilitic cutaneous eruptions, this form, more especially when the rapid and excessive exfoliation of the epidermis lays bare the cells of the Malpighian layer, with the result of forming thin peripheral or general crusts, is often accompanied by a considerable amount of itching, as may be seen from the scratch-marks often present."

Perhaps the most interesting feature of my own case is the association of the circinate syphilide of the face and neck with the papulo-squamous syphilide of the palms of the hands, popularly known as *psoriasis palmaris syphilitica*. Such papulo-erythematous lesions as have been described are characteristic of the secondary period of the disease and may come on early; whereas the palmar syphilide, as seen in this case, usually occurs either in the period of sequelæ or as a late secondary manifestation. The condition illustrated is more marked than is the ordinary papular syphilide of the early stages of the disease, and it is much more obstinate to treatment. While, in the case at present under consideration, the lesions of the palms yielded comparatively easily to specific treatment, they were very much more tardy in disappearing than were the lesions of the face. They left, moreover, an erythematous surface corresponding in area and form with the original lesion, and relapse occurred within two or three months after the infiltration of the skin had completely disappeared, as a consequence of dissipation and negligence on part of the patient. The rule that the circinate syphilide occurs in the early period of syphilis is not without exceptions.

Brauman[1] has called attention to numerous observations that show that in the so-called tertiary period of syphilis there may appear eruptions unlike most tertiary lesions, which are deeply situated in the skin (tuberculo-gumma syphilides), in that they present a superficial character and may closely resemble the syphilides of the secondary period. These superficial eruptions of the tertiary period present themselves in two forms, viz., a superficial papular eruption, which is most exceptional, and an erythematous eruption of a pale-rose color, a little yellowish in parts, forming large circles, or more frequently lesions of an oval or elliptical form. To the latter form of eruption has been given the name *erythème circine tertiaire*. This resembles a late roseola of the circinate form that has been called by Fournier *roséole de retour* and which may appear very late in secondary syphilis. This late roseola seems to establish the pathologic connection between the roseola occurring at the beginning of the secondary period and the peculiar circinate erythema of the so-called tertiary stage of the disease. In the superficial eruption described by Brauman, the lesion almost always presents itself as a simple erythema, without elevation, and there may exist a certain amount of desquamation of the very fine scales which tends to be very stubborn, even if well treated, and yields best to the mixed treatment.

Cases such as my own show that a distinct erythema more or less generalized, *i. e.* extending uniformly over quite an area of the skin, may be associated with distinct lesions of the syphiloderma papulosum circinatum. This case also shows something of a tendency to precocity, incidental, I presume, to the bad personal hygiene of the patient.

[1] Thèse de Paris, 1891. Annales de Dermatologie et de Syphilographie, November, 1891.

ORIGINAL ADDRESS.

THE NECESSITY AND THE BEST METHOD OF REGULATING THE PRACTICE OF MEDICINE.[1]

BY PERRY H. MILLARD, M.D.,
HONORARY MEMBER OF THE AMERICAN ACADEMY OF MEDICINE, DEAN AND PROFESSOR OF THE PRINCIPLES OF SURGERY AND MEDICAL JURISPRUDENCE, UNIVERSITY OF MINNESOTA.

IN reviewing the question of medical education in the United States the student of history will readily conclude that the facilities afforded pupils of medicine have been painfully inadequate, and that the minimum of requirements in a vast majority of colleges has been well below that standard which affords the public a profession possessing a degree of skill and ability commensurate with the safety of its people. It has been the policy of the authorities controlling these institutions of learning to maintain a standard below recognized safety. In addition to the very low curriculum, the resources of most colleges have been inadequate, and the clinical instruction most deficient. It is but recently that a majority of the colleges in this country have attempted a system of regular laboratory instruction. The causes leading to this dilemma are many; among the most common may be mentioned:

[1] Read at the Seventeenth Annual Session of the American Academy of Medicine, June 6, 1892.

First. The history of pretended medical education in this country covers a period of little more than a century, the people possessing those elements of hurry and restlessness observed in all new communities.

Second. It has not been the policy of this government to liberally support university or higher education—a form of education reaching a high degree of perfection in the British Isles and Continental Europe, and embracing in its scope all special lines of advanced instruction, such as law and medicine.

Third. The people being governed by a republican form of government, the policy has naturally been liberal in respect to freedom of action and choice of avocation; not infrequently this policy has been at a sacrifice of the best interests of a credulous public. In a monarchical or patriarchal form of government it is much easier to restrict or control the action of the people.

Fourth. In consequence of the late civil war, covering a period of four years, a half-million young men found themselves penniless, with limited education and without avocation or profession. Many thousands had secured a superficial knowledge of the art of medicine and surgery from their war experience, and naturally, as a result, a horde of brave but uncultured men turned their attention to the profession of medicine. In consequence, the number of medical colleges in the United States doubled in a short period of time, and the list of matriculates increased at a much greater ratio. Notwithstanding the wonderful increase in population and resources of this country, in a period of a few years the proportion of physicians increased far beyond the legitimate demands of the public.

Fifth. There has been a noticeable absence of that concert of action so necessary between the different schools of instruction to secure uniformity of system in education, or uniformity in the attempts at the elevation of the standard of medical instruction. There has been no restriction to the unlimited multiplication of the number of medical colleges. There has been no attempt to dictate the character of instruction by legislative control. There has been but little attempt to regulate the character of instruction even by the faculties themselves. In consequence, the profession and the public have in the last few years been casting about for a means of remedy to avert a disaster that seemed to imperil the very existence of the noblest of the learned professions. It became apparent to the observing and thinking that the profession of medicine was being degraded in its *personnel*, and but little respected by the people themselves. A condition was fast approaching whereby we were placed in quite as ridiculous a position as is described by Molière in the fourteenth century. It required but a casual study of the situation at that time to conclude that but one of two methods was available for the correction of the existing evil. The first was that the power to raise the standard of medical education in the United States was vested wholly in the various faculties of medical instruction, and by concerted and business-like action they could readily comply with the most reasonable demands of the profession and the public, and, in doing so, not materially injure their own interests in bringing about the much-needed reform.

The second was that in failure thereof the only alternative was a resort to some restrictive legislation compelling the various colleges to raise their standard of instruction, as applying both to the preliminary entrance examination and to the curriculum of professional duty. A sincere attempt was made by representatives of a few colleges in a period of time from 1876 to 1882, and there resulted from this effort the lamentable history of the American Medical College Association. The disruption of this association was brought about by the treachery of a few representatives of colleges whose policy was governed entirely upon a commercial basis. The disruption of this association at the time was considered a great professional calamity, and the friends of higher medical education soon cast about for some method of bringing order out of chaos.

It was determined that the best means of controlling this evil was through efficient medical legislation. As a result, members of the profession scattered throughout different portions of the country attempted to secure legislative enactments creating State boards of medical examiners. In a majority of instances the attempts were met with defeat at the hands of the different Legislatures, and a majority of the bills that had become laws were painfully defective, as could only be expected in any new form of legislation. The first acts that were recognized as efficient, and at all restrictive, were those of the States of Illinois and West Virginia. Immediately following we have substantially the same act in force in the States of Missouri, Iowa, Minnesota and Dakota.

This form of legislation permitted men to become legal practitioners by submitting a diploma issued by a regularly chartered medical institution. The act further provided that diplomas may be refused or revoked for unprofessional or dishonorable conduct.

The profession soon recognized and became convinced that the so-called Illinois act, if properly enforced, would exercise a wholesome and restraining influence upon medical colleges and rid the public of the infamous practices of the itinerant charlatan. Those of us whose painful duty it was to enforce

the medical law referred to know too well the herculean task we had undertaken. The barriers seemed insurmountable, and our only solace was the realization that our cause was just.

It was my province to act as Secretary of the Minnesota Board for a period of five years, or during the life of the first Practice Act. This act was substantially a copy of the act now in force in the State of Illinois and several other States.

My experience and observation soon convinced me that we had upon our list of recognized colleges a large number of schools whose alumni were not safe practitioners. Any attempt to discipline these institutions was met in a most belligerent spirit, or by an influence well suited to the ward politician or political blackmailer.

I became firmly convinced that the principle of recogizing the diplomas of colleges was not the correct one. I soon agitated the propriety of the amendment or entire repeal of the Minnesota act, or the securing of a new act calling for a personal examination of each and every person wishing to practise medicine in the Commonwealth. The propriety of determining the fitness of men to practise medicine by means of a personal examination was recognized and acknowledged to be the proper method by the State Board of Minnesota. At a conference of Boards of Medical Examiners held in Chicago in 1885, I urged the propriety of concerted action in an attempt to secure uniformity of legislation by an act in the several States calling for an examination of each candidate for a license, and providing, as in the Illinois act, the privilege of refusing or revoking licenses for unprofessional or dishonorable conduct. The consensus of opinion at this conference plainly indicated that it would be a step in advance if we possessed legislation granting the privilege of examining all students wishing to commence the practice of medicine. The majority of those present, however, were of the opinion that the opposition would be so pronounced as to insure defeat. The members of the Minnesota Board, however, concluded to ask the Legislature for further legislation, and I was instructed to draft a bill for submission at the forthcoming session. The bill was the same as the one now in force in Minnesota and several other States. It became operative with us July 1, 1887. It established a minimum of time to be spent at medical lectures before a person would be permitted to apply for an examination to determine his fitness to practise medicine. It further provided for an examination of all persons wishing to commence the practice of medicine in any of its branches in the State. It likewise granted the privilege to refuse or revoke licenses for unprofessional or dishonorable conduct.

It was the first draft of a bill to become a law that called for a minimum of time to be spent at lectures before commencing the practice of medicine. This feature of the bill has proved eminently satisfactory in Minnesota, and has been copied in the statutes of several other States. Its effect has been most salutary upon several of the medical colleges of this country, and, as a result thereof, nearly every institution of this country whose term of lectures was less than six months has extended its duration to comply with the statutory requirements of the several States. At the present time, persons wishing to commence the practice of medicine in the following named States are required to prove their fitness therefor by undergoing an examination: Minnesota, North Dakota, Montana, Washington, North Carolina, Alabama, Florida, Virginia, New Jersey, New York, Nebraska, Maryland, and Utah.

Nearly all of this legislation has been accomplished in the period of the last five years, and the present indications are that in the near future a majority of the States of the Union will secure correspondingly adequate legislation. The agitation of this reform has met with quite bitter opposition from some sources—the principal opposition, however, coming from the authorities of the various medical colleges. This opposition has been most futile, as the situation of the profession in this country was readily recognized by the legislator, and the further fact that no rational argument could be rendered against the constitutionality or propriety of some form of restrictive legislation.

The necessity of restricting the practice of medicine has been recognized by all nations of civilized people from time immemorial. Every European country possesses most stringent Practice Acts, and has for centuries. The so-called police power has likewise been recognized for centuries.

Traces of forensic and State medicine are as old as institutions of civil society. The Jews recognized mortal wounds. The Egyptians provided that no woman pregnant with child should suffer afflictive punishment. The Romans, even from the period of Numa, grounded many of their laws upon the authority of physicians. The Carolina Code, under Charles V., was established in 1532. The first traces of the exercise of police power as applied to the practice of medicine are found in Italy in 1237. Here a license to practice was granted by the University of Salino after a study of philosophy for a period of three years and of medicine for a period of five years. This license was only obtainable after a satisfactory examination. Shortly after this date licenses were likewise granted in England.

The first degrees in medicine were presumably granted in 1384. The first efficient law regulating the practice of medicine in England was enacted in 1511. The progress of medicine during the seven-

teenth century has been ably described by Macaulay in Vol. I, page 310 of his History.

"Medicine," he says, "which in France was still in abject bondage and afforded for Molière an inexhaustible subject of just ridicule, had in England become an experimental and progressive science, and every day had made some new advance in defiance of Hippocrates and Galen. The attention of speculative men had for the first time been directed to the subject of sanitary police." Investigation reveals the fact that efficient regulation of medical practice and higher medical education progressed, hand in hand, from the period of time mentioned by Macaulay down to the present time. The courts have universally affirmed the legality or constitutionality of the various laws regulating the practice of medicine in the different countries of Europe. The United States Supreme Court has recently rendered a decision affirming the constitutionality and the general features of Medical Practice Acts. A large number of the Supreme Courts of the different States have likewise affirmed the constitutionality of the different Medical Practice Acts. In a few instances, in the lower courts, where decisions have emasculated the power of State Boards of Medical Examiners, it has been due to the faulty wording of the act itself, rather than to any unconstitutional features that may be found in this form of legislation.

In a paper read by me at the session of the American Medical Association in 1888 I advocated a greater uniformity of medical legislation by the various States. The discussion led to the appointing of a committee with instructions to formulate the general features of a Practice Act that would be suitable for adoption in any of the different States of the Union. As chairman of that committee, at the next session of the Association I submitted the draft of a bill possessing the essential features of the act now in force in the State of Minnesota. The report of the committee was unanimously accepted and adopted, together with resolutions urging upon the profession the propriety of at once attempting the establishment of efficient Medical Practice Acts in the different States of the Union. I am gratified to observe that in nearly all instances in which Medical Practice Acts have recently been obtained the essential features of the Minnesota act have been adopted.

The question of medical legislation should be considered from two standpoints, to-wit: That of the regulation of medical practice, and that of the regulation of medical education. In the performance of the first function, boards should consider that it is simply their duty to protect the public from the imposition of charlatans and the grave errors certain to arise from the practices of uneducated men. The duties of the State Licensing Board end here. If the act is so worded as to likewise regulate medical education in the Commonwealth, it is eminently proper that a minimum of requirements should be established, and the Boards authorized to exercise a general supervision pertaining to the character of instruction in all colleges whose alumni become applicants for the privilege of practising in the State. I sincerely question the propriety of one Board performing both of these duties. Basing my opinion upon extensive observation and experience, I believe that the best interests of the public will be subserved by assigning the duties of the State licensing power to the various State Boards of Health.

The medical licensing power is purely a police power, and were these duties assigned to Boards of Health it would assure greater prestige and influence in the community. I believe that the regulation of all forms of education should be vested in a central power, consisting of a single board to be known as a State Bureau of Education, with power to regulate all educational institutions granting degrees, together with the power of granting and revoking charters; particularly should this apply to all institutions wishing to afford the community any of the various forms of higher or special education. Under existing circumstances, in a vast majority of the States of this country, three or more persons can form a corporation, and become incorporated by application to the Secretary of State, and grant degrees *ad libitum*. The *personnel* of these Boards is immaterial, providing the parties be reputable and intelligent practitioners of medicine. It is my opinon that the mixed boards, such as exist in Minnesota, Illinois, Iowa, Montana, Missouri, North Dakota, and several other States of the Union, render better service to the public than the few separate boards that have been created in compliance with the demands of the several so-called schools of practice. In the States possessing mixed boards that conscientiously perform the duties of a public servant I have yet to hear of any clashing or jealousy among the members. I believe the best interests of the people will be subserved by the maintenance of a clause in each of these acts providing for the refusal or revocation of a license to practise, in case of unprofessional or dishonorable conduct. I question the propriety, however, of boards exercising this power except in most flagrant cases.

If John Smith is disposed to occupy the first page of a newspaper in calling the attention of the public to the fact that he confines his attention entirely to diseases of the genito-urinary organs, I believe this indiscretion alone should not cost him the right to practise medicine; upon the contrary, should he

claim in the public press that he can cure what is recognized by the profession as an incurable disease, such as tuberculosis or carcinoma, it is the duty of the board to step in between the credulous public and the dishonorable practitioner and deprive the impostor of his professional rights. It is, likewise, the duty of the board to refuse or revoke the license for persistent and chronic inebriety, criminal abortion and repeated gross immoralities.

As honorable and intelligent physicians, we recognize the great sin of advertising in any manner. In view, however, of the outspoken sentiment in favor of any restriction in this direction, I presume it is better to allow the fool his course, at least until he reaches that point in his career that his practices imperil the safety of the public.

I am pleased to submit some statistics of the work accomplished by several State Boards of Medical Examiners. My statistics are from States where the law requires a personal examination of the applicant's fitness to practise These examinations include all of the essential branches of the field of medicine. They afford a most convincing argument in behalf of efficient medical legislation.

I trust I may not be considered presumptuous if I assert that in the administration of their delicate and untried trusts it has been the policy of these boards to be somewhat lenient, and to license many whom they knew possessed inadequate instruction. A part of their duties has been to educate both the profession and the public to the propriety of this form of legislation. Notwithstanding this policy, we are informed that 24.8 per cent. of all applicants for a license to practise have been rejected as unsafe practitioners.

My statistics are based upon returns from the following-named States: Alabama, North Dakota, North Carolina, Virginia and Minnesota.

The total number examined was 1950.

The total number classified was 1746.

The total number unclassified was 204. The unclassified represents foreign and extinct colleges and undergraduates.

The total percentage licensed was 75.2 per cent.

Of 183 graduates of colleges requiring three courses of instruction for the degree of M.D., 179 passed examinations; 4 were rejected: making the percentage passed 97.2.

Of 435 graduates of colleges that formerly issued degrees after attendance upon two courses of lectures, 343 passed examinations; 92 were rejected. The percentage passed was 78.8.

The foregoing data are compiled from the records of the different Boards of Examiners. The comparison indicates the results of the examinations of graduates of the graded three-course institutions and those that previously to 1890 conferred degrees after attendance upon two courses of instruction. Colleges were selected that were indicated by the report of the Illinois Board of Health as matriculating respectively the greatest number of students in the year 1890.

The foregoing statistics indicate that graduates of the three-course graded colleges rarely fail before the various State Boards of Medical Examiners.

The practice of medicine is fairly well regulated at the present time in about one-half of the States. The present indications are that the spirit of reform will extend, and in the near future include all of the States. The friends of medical legislation include the masses of the profession and the representatives of the better colleges of the country. Its enemies principally include the representatives of those colleges governed by commercial interests and charlatans.

Up to the present time the number of medical colleges has increased out of all proportion to the increase of population. Of 130 schools, less than a dozen are endowed. The number of practitioners is greatly in excess of the legitimate demands of the people. We are reliably informed that in the decade ending with the year 1890 the colleges of the United States matriculated 115,355 students, and graduated 39,996. This is an average of 4000 yearly—in my opinion, more than twice as many as the requirements of the people demand.

As a final argument in behalf of adequate medical legislation, I beg to submit the following statistics, based upon the proportion of physicians to the inhabitants in a few of the European countries:

RATIO OF PHYSICIANS TO POPULATION.

Sweden, ...	1 to 7000 population.
Italy, ...	1 to 3500 "
Germany, . . .	1 to 3000 "
Austria-Hungary, . .	1 to 2400 "
France, ...	1 to 2000 "
United States, . .	1 to 600 "

The foregoing figures explain themselves, and comment seems unnecessary.

Basing my opinion upon observation of the workings of the Minnesota law in its first five years' experience, I am fully satisfied that efficient legislation will reduce the number of physicians to a number commensurate with the needs of the people, and that the people will be better and more honestly served. Minnesota has a smaller number of physicians to the inhabitants than any State of the Union; St. Paul a smaller number to the inhabitants than any of the larger cities of the United States. The result in this State is wholly due to efficient legislation, and the effect of the act has

been to enhance the welfare of both the profession and the public.

Briefly, my conclusions upon the question of medical legislation can be summarized as follows:

1. The regulation of medical practice and medical education is constitutional, and the demands therefor imperative. Secondly, a distinct line of demarcation should exist between the so-called licensing power and the regulation of medical education. Thirdly, the licensing power should include in every State the following essentials:

a. The evidence of the candidate's fitness to practise medicine should be established by his undergoing an examination upon all the important branches of medicine.

b. There is absolutely no necessity for a series of questions that in the least conflict with the views of the various so-called schools of practice.

c. Power should be granted to revoke or refuse license for unprofessional or dishonorable conduct.

d. The exercise of this power upon the part of the different boards should only be resorted to in palpably flagrant cases.

e. The public interests will be best subserved by so-called mixed boards.

f. The power vested is best executed by the State Sanitary Police, or rather the different State Boards of Health.

g. The duties of the act belong to that department of law known as the State Police Power; the appointing power should be vested in the Governor.

h. Appointees should be men of recognized ability and standing in the various communities.

4. I am satisfied that the influences of efficient medical legislation will have a most salutary effect upon the character of instruction afforded students of medicine in this country, and that the faculties of the various colleges in the future will not be so notoriously lax in regard to the conferring of degrees.

5. It is likewise essential that medical education should be restricted or regulated in the various States, and, in my opinion, there should be created a central authority, consisting of a Bureau of Education; this bureau should have power to refuse or revoke charters, and should exercise a restrictive influence as to the character of education conferred, and the authority should apply particularly to special schools of education, such as law and medicine.

6. This bureau should establish regulations pertaining to the granting of charters to medical colleges. The charters should not be granted unless all necessary laboratories are thoroughly equipped; unless facilities for clinical instruction are unquestioned, and unless applicants for charters should satisfy the bureau of their undoubted ability to support the institution financially, without being dependent upon the fees of its students for its sustenance.

In a recent report, the Commissioner of Education of the United States forcibly directs the attention of the public to the inadequate equipment of the medical colleges of this country. We are informed in this report that there are $2,672,000 invested in grounds, buildings, and apparatus for the medical schools of the United States. The amount of productive funds for these schools is only $266,190, and the annual income from investment only $22,000. He states: "When we examine the facilities and demands of this country, with those of the British Isles and Continental Europe, we necessarily conclude that the foreign schools exact too much or that our system is painfully crude and lax." The Commissioner of Education further remarks: "That, considering the enormous amount of knowledge that has been accumulated respecting the proper treatment of disease, its prevention, and its nature, the impression becomes irresistible that we have been influenced by our national impatience and haste in this matter, as well as in many others, and that we have allowed the student to dictate the length of time of study instead of obliging him to spend enough time to receive it properly and retain it securely."

Applied to the profession of medicine, there is but one inference to draw from the foregoing data: we can only conclude that the facilities for securing a thorough medical education in this country are indeed inadequate. The present high character of the masses of the profession in the United States is not so much due to the facilities of college training, as to the individual character of the profession. The vast majority of the profession of this country now in practice received their degrees of M.D. after attendance upon but two courses of medical instruction, of not more than twenty weeks' duration each; many look back upon their medical college career as an unimportant epoch, and think of those days as a work of confusion. The instruction afforded by this system of medical education was hurried, superficial and most inadequate to our wants, the course consisting rather in calling the attention of the student to the art of medicine, instead of teaching him the sound principles upon which is governed the great field of active practice. This system of instruction was a delusion. Our experience confirms us in the opinion that if the student does not become grounded in the essential principles of medicine in his college days, he never will. Except in a few rare instances, a physician does not acquire histology, anatomy, and physiology, and chemistry after receiving his degree of M.D. The few that have become proficient in

later professional life have been placed at a very great disadvantage.

We are pleased to observe at this time a disposition to foster and support a higher system of education among the masses. The present disposition in the various States of the Union is toward a complete divorcement of the public-school system from church or other influences, and affording to the public a system of education fully equal in quality and as extensive in scope as can be obtained in any civilized country. This disposition is particularly noticeable in several of our Western States. We see here millions of dollars spent annually in the support of university education, and the facilities for instruction in several of these institutions are quite unsurpassed. We already have our University of Michigan, with its 2800 students; the University of Minnesota, with its 1400 students, and, closely following, those of Wisconsin, Iowa, Texas, and Nebraska.

The growing tendency of the State to foster higher education carries with it much encouragement for the profession of Medicine. It means a medical department in connection with many of these institutions that are independent and directly supported by the State. I am pleased to see a disposition in many of our colleges to connect themselves with universities. A medical college connected with a university has few objections and many advantages. As we pass the fourth centennial epoch in our history, we can look forward with most sanguine expectations in all that pertains to medicine. We invite our critics to forget the past and only look to the present and future. Present appearances plainly indicate that we are on the eve of a new departure in medical education in this country. The older system of medical education is a thing of the past; let us forget it quickly and look with sanguine expectations to the future.

In conclusion, I again appeal to the profession of this country, and particularly to you, gentlemen—the most intelligent representatives of the profession of medicine in America—to renew your zeal and continue in your efforts until the battle for higher medical education in America is actually won and the good name of the profession of medicine rescued from disgrace.

CLINICAL MEMORANDA.

RÖTHELN.

BY S. P. HARRINGTON, M.D.,
OF FARLEY, MO.

I AM prompted by reading the articles regarding scarlatina and Röthlen that have appeared in THE NEWS to present a report of twenty cases of Rötheln, some of which if isolated would have been hard to differentiate if we did not take into consideration and weigh carefully all the evidence presented by the various cases before forming our conclusions. Care in observation will in a great measure obviate the confusion that now exists in naming the two diseases. Those that have been in the habit of calling every sore-throat, with or without an eruption, scarlet fever, will be more careful, and be contented with the facts presented by each epidemic.

CASE I.—May C., ten years old, came to my office about February 1st, complaining of sore-throat. I found the soft palate and uvala presenting a bright-red appearance, which extended to the posterior pharynx to a less degree. The tongue was covered with a whitish coat. There was an eruption on the face, hands, and trunk, presenting the appearance of a mild erythema, with a few well-defined points of a brighter red. The temperature and pulse were normal. I sprayed the girl's throat twice. She received no other treatment, and did not consider herself sick.

CASES II and III appeared at about the same time as Case I, but in another family. I likewise heard of several other cases appearing in different parts of the county simultaneously. My cases gave a history of chill, followed by mild fever, sore-throat, with an eruption that was decidedly red. Both were out in a few days.

CASES IV and V, one and three years old, respectively, had fever that ranged from 102.5° to 103° F.; the pulse was from 130 to 140. They had sore-throat, with induration and swelling of the post-auricular and post-cervical glands; the tonsils were considerably swollen. In one case, acute unilateral inflammation and in the other acute bilateral inflammation of the middle ear developed, terminating in suppuration. Neither presented an eruption.

CASES VI and VII occurred in the same family as Cases IV and V, in children five and ten years old, respectively. Both had sore-throat, with induration and swelling of the cervical glands, producing slight stiffness of the neck. Other symptoms were absent.

CASE VIII.—Miss H., fifteen years old, was taken suddenly with a chill, followed by fever. The temperature rose to 103° F.; the pulse to 120. The throat was sore, especially the soft palate and the uvula. The tongue was covered with a whitish coat, which became brown and dry. Thirst was excessive. The post-auricular and post-cervical glands were slightly indurated and swollen, producing slight stiffness of the neck. The eruption first appeared upon the face, and rapidly spread to the body and extremities. It lasted for three days, when it began to fade, and was followed by desquamation in fine scales.

CASE IX.—Mrs. H., the mother of Case VIII, forty years old, on the fourteenth day after the daughter became ill, was seized with a chill, followed by fever, the temperature rising to 108° F., the pulse to 120. The throat was sore. The post-auricular and post-cervical glands were indurated and swollen, with slight stiffness of the neck. Otitis media, with suppuration, developed. The eruption was slight, but general in distribution, and was followed by desquamation in fine scales. The patient gave a history of scarlet fever when a girl.

CASE X.—My own baby, two years old, was seized with vomiting. The temperature and pulse remained normal, except when vomiting took place, when the pulse

would become accelerated. In the first twelve hours, the vomiting was almost uncontrollable, and at one time, after an hour's quiet sleep, she awoke and vomited blood three or four times. The throat was sore, but there was no eruption or glandular involvement. The cheeks would flush as though she had fever, but the temperature was always found to be normal. The hematemesis was controlled by one dose of liquor ferri subsulphatis; the vomiting by cocaine. Ice-cream was the only article of diet allowed for two days. A stomachic tonic of infusion of calumba was also given. Recovery was rapid and perfect. There is a light-brown discoloration left over the right mastoid process, about the size of a quarter. If there was any eruption at this point it escaped our notice.

CASE XI.—Mrs. I., fourteen days after exposure, without any warning was seized with a chill, followed by fever, the temperature reaching 103° F.; the pulse from 120 to 125. There was sore-throat, with induration and slight swelling of the cervical glands. The neck was slightly stiff. Vomiting was severe. The eruption was general and of a bright-red color. Desquamation took place in fine scales. The patient gave a history of scarlet fever when a girl.

CASES XII and XIII, two and four years old, respectively, were without warning seized with chill, followed by fever, the temperature ranging from 102.5° to 103° F.; the pulse from 120 to 130. There was sore-throat. A bright-red eruption appeared on the face and rapidly spread to the body and extremities. The eyes were red and watery. The voice was husky. The symptoms of coryza were marked, as was the case in varying degrees in all of my cases. The eruption lasted from three to four days, fading gradually. Desquamation took place in fine scales.

CASE XIV, the mother of Cases XII and XIII, fourteen days after the children became ill, was seized, without warning. with a chill, followed by fever, the temperature reaching 103° F.; the pulse 120. There was sore-throat. The eruption was general, and lasted three or four days, disappearing with very little desquamation.

CASE XV, the father of Cases XII and XIII, and the husband of Case XIV, became ill at the same time as did his wife. He had severe aching in the limbs and sore-throat. No other symptoms appeared. This aching of the limbs was a prominent symptom in all of the cases that were old enough to describe it.

CASE XVI.—Mrs. W., fifty years old, was seized with a chill, followed by elevation of temperature and acceleration of pulse, severe aching in the limbs, stiffness of the neck and soreness of throat, with induration and swelling of the post-cervical glands, which suppurated.

CASE XVII.—G. F., ten years old, became ill at about the same time and in about the same manner as Case I. The children were together every day, and the parents stated that both presented the same symptoms. No treatment was employed.

CASE XVIII.—M. F., a sister of Case of XVII, seven years old, became ill between two and three weeks after her sister. I did not see her, but her history, as obtained from her father, is that she was well at supper-time, but during the night felt chills and vomited once or twice. She appeared feverish. The eruption was profuse; it appeared on the face first, but in a short time the entire body and extremities had become involved. There was sore-throat. The treatment was mild.

CASE XIX.—A. F., a brother of Cases XVII and XVIII, five years old, twenty-one days after his sister became ill, presented symptoms similar to hers. The attack set in at night; on the following evening he had a light spasm. I found the boy with a temperature of 103.5° F., and pulse of from 130 to 140. There was twitching of the muscles, with mild delirium and frequent vomiting. On the following morning he was resting better; the temperature was 101.5°; the pulse from 115 to 120. The throat was sore; the tongue dry and brown; the nares almost occluded. The parents informed me that he had been troubled with catarrh of the nose for a month or so. The eruption had now become general, leaving no part exempt. The tonsils were swollen considerably; the post-auricular and post-cervical glands were indurated and swollen. The boy had played out of doors all or most of the day before he was taken ill. It was noticed that he sat upon the ground, which was wet. I saw him on the next morning, much improved; the temperature was 99° F.; the pulse 108; the swelling of the glands was apparently arrested. On the next morning he was still improving, and promised to make a speedy recovery; but in the night he became worse. I found him very restless; the temperature was 101° F.; the pulse 120; the glands and connective tissue of the neck were beginning to swell again, although the breathing was not much interfered with. After I had gone, the parents became alarmed and thought consultation advisable. When I returned at one o'clock to learn the hour of consultation, I found the boy with a temperature of 103° F. and the pulse from 130 to 140. In an hour I was sent for in haste, the messenger stating that the boy was choking. When I arrived I found him *in articulo mortis*. Cyanosis was marked and the breathing was very difficult. Diffused bronchial râles were heard over both lungs. I immediately performed tracheotomy, whereupon a quantity of mucus of a brownish color escaped through the opening. I inserted the tube and considerable more fluid ran out. The boy breathed full and easily for about one-half an hour, when death closed the scene. I believed that bronchitis had set in a few hours before, and was the immediate cause of death.

CASE XX.—B. F., a sister of Case XIX, two years old, became ill a day after her brother, both evidently having taken the disease from their sister, Case XVIII. The eruption and fever were the first signs. The eruption was marked, presenting a bright-red appearance. The throat was sore; the post-cervical glands were indurated and swollen; these broke down after being poulticed. The tongue was dry and brown. Sixteen days after the onset of the attack, the parents gave the girl two doses of quinine, the amount of which was probably three or four grains in all. This served to cause an attack of hives. Otherwise she has done well.

The point to which I wish to call attention is the epidemic character of the affection. It seemed that almost every one was under its influence more or less. Its contagious character was manifested in its transmission from one member of a family to the others, while in some cases it was carried from one family to another by a susceptible individual. The cases were also mostly mild,

only one proving fatal, and that evidently from a complication. Two of the adults had previously had scarlet fever. Nearly all presented more or less induration and swelling of the post-auricular and post-cervical glands. None of the usual complications and sequelæ of scarlet fever were observed. The strawberry tongue was not encountered. My plan of treatment has been entirely symptomatic. I gave sodium salicylate and antifebrin in equal parts to control the fever, the dose being regulated to suit the individual case. Due attention was given to the secretions. An antiseptic throat-wash was used five or six times or oftener a day, according to the urgency of the case. Cocaine and bismuth subnitrate were given for vomiting when indicated. As a tonic I gave elixir of iron, quinine, and strychnine. For nourishment I relied on milk, soft-boiled eggs, ice-cream and meat-broth.

A CASE OF ECLAMPSIA; FOLLOWED BY FACIAL ERYSIPELAS; RECOVERY.

BY ALBERT PICK, M.D,
OF MANCHESTER, N. H.

MRS. P., a German, thirty-two years old, was a weak, delicately built deutipara. She had had typhoid fever when ten years old, which was followed by almost complete alopecia. Otherwise she had always been healthy. Her first child was born eight years ago at full term, after a tedious but normal labor. A few weeks previously to the present confinement, at full term, she suffered from vertigo and headache.

I was called to see the woman on March 22d at 2 P.M. Just as I entered the sick-room she had a severe convulsion, lasting for about two minutes. Another followed in twenty minutes. There was stertorous breathing and the pupils were perfectly reactionless. Her attendants stated that she had felt some labor pains on the previous night. She had been unconscious since 6 A.M.; the convulsions beginning at that time. The physician who had attended her in her former confinement was sent for, and, without making a vaginal or other examination assured the friends that the condition was not serious, and that the patient would soon be "all right." At 9 A.M., when he came again, the patient had a severe convulsion.

At 2 P.M. I was sent for; the patient now having convulsions every half-hour. I immediately made a vaginal examination and found the os externum very rigid, with no signs of labor. As the patient was unconscious and could not swallow, I administered one dram each of chloral and sodium bromide by the rectum, and then put her into a hot pack. While I was carrying out the procedures the patient had two convulsions. After I had put the patient into the hot pack I went for my colleague, Dr. J. L. Robinson, to assist me in the induction of labor and in the further management of the case. I left some pearls of amyl nitrite (each containing four minims), with instructions that one should be crushed in a handkerchief, and the directions that the patient be made to inhale the vapor in case the necessity arose.

On my return with Dr. Robinson, I learned that the patient had been breathing more quietly, had perspired freely, and that she had not had any more convulsions.

We found, on vaginal examination, some dilatation of the os, which was yet rigid, as was also the perineum Methodical dilatation was at once instituted, and, after the cervix was sufficiently dilated, the membranes were ruptured. Labor-pains now appeared more frequently and were of better quality and more lasting.

L. O. A. was diagnosticated. At 6 P.M. the head was born; expulsion of the trunk quickly followed. The cord was wound several times around the neck of the child. The latter showed signs of impeded circulation, and after a few short and feeble efforts of respiration it seemed to give up. Considerable time was spent in efforts to restore life, which finally were crowned by success.

The placenta came away at the expiration of half an hour. After the patient had been cleaned and dressed, she fell into a profound sleep, consciousness not being restored until the next morning. The chloral and sodium bromide were continued during the night and following day—in smaller doses, of course. The woman complained of pain in the muscles of the face for several days; especially painful were the muscles attached to the lower jaw.

Otherwise convalescence was uneventful until the fourth day post-partum, when, coincidently with a rise in temperature, facial erysipelas developed. The face was much reddened, considerably swollen, and very painful. The temperature rose to 104° F. The patient was given gr. iij of quinine and gr. $\frac{1}{10}$ of extract of belladonna four times daily; locally, an oxide of zinc and bismuth subnitrate salve was used. As the bowels were somewhat sluggish, fluid extract of cascara sagrada was added to the treatment. The diet was liquid, but nutritious. The patient improved rapidly, and a week later was out of bed and made an uninterrupted and uneventful recovery.

Rapid emptying of the uterus was the main measure relied upon in the management of this case of eclampsia, and the result was satisfactory and speedy to both patient and accoucheur.

MEDICAL PROGRESS.

Death after the Intra-uterine Injection of Ferric Chloride.—PLETZER (*Centralbl. für Gynäkologie*, 1892, No. 18, p. 337) reports the case of a woman, thirty-two years old, that presented herself with retroversion of the uterus and chronic endometritis. There was a history of syphilis, of repeated miscarriage, and of cerebral hemiplegia. The cavity of the uterus was curetted and tincture of iodine was applied. A Hodge pessary was employed to keep the organ in position. A small myoma was found upon the posterior uterine wall. After four days of rest in bed, the uterus was irrigated with a 2 per cent. solution of carbolic acid, and tincture of iodine was applied. The next menstrual period occurred at the expected time; the flow was full and lasted a week. Subsequently the treatment was resumed; the injections were made at intervals of two days. Considerable hemorrhage ensuing on one occasion, a half-dram of the official solution of ferric chloride was, by means of a syringe with lateral fenestra, slowly injected into the disinfected uterus and permitted to flow out, the uterus afterward being irrigated with a 2 per cent. solution of carbolic

acid. The patient was put to bed. She complained of intense abdominal pain; the skin became livid, the pulse small and frequent, the breathing stertorous. Despite the energetic application of remedial measures, the woman died two and a quarter hours after the injection had been given. At the autopsy an old hemorrhagic area was found in the left optic thalamus. The right heart contained numerous thrombi situated among the trabeculæ. The pulmonary veins and their branches contained a few loose thrombi. From the right internal iliac vein, at the point of bifurcation of the common iliac, protruded a thrombus more than an inch long. The posterior surface of the interior of the uterus presented a longitudinal defect about a half-inch long, resembling a tear of the mucous and muscular coats, perhaps a fifth of an inch deep. At the bottom of this defect were visible numerous small veins filled with dry, black, firm clots. One of these veins could be traced as a thick cord through the pelvic connective tissue to the common iliac vein. The blood throughout the body was fluid.

Cranial Surgery. — At a meeting of the Philadelphia County Medical Society MORRISON reported three interesting operations in cranial surgery. One case was that of a forceps-delivered boy, two years and seven months old, with defective mental development, in which linear craniotomy was performed. Improvement soon followed upon operation, and was persistent thirteen months later. The second case was one of epilepsy in a boy, eight years old, in which the convulsive movements were most decided upon the right side of the body. The skull was trephined above and in front of the point of intersection of the temporal ridge and the coronal suture on the left, but nothing abnormal was found. Slight temporary improvement followed upon the operation, but the paroxysms soon recurred with their previous frequency and severity. In the third case, a subdural abscess formed as the result of a blow upon the head, with fracture of the internal plate of the bone. A wound of the scalp and bone had been inflicted in front of and parallel with the left Rolandic line. Consciousness had not been lost. There was some nausea and vomiting. Four days after the accident, pain in the left temple set in. On the eighth day, loss of power was noted in the right arm and leg, which on the ninth day had progressed to complete paralysis, including likewise the right side of the face. The skull was trephined in front of the original wound. The internal plate of bone was found separated from the external plate for half an inch on each side of the opening. An extra-dural clot was present. The removal of a fragment of bone that had penetrated the dura permitted the escape of an ounce of pus. The dural opening was enlarged and the abscess-cavity irrigated. Drainage was provided for. The patient made a satisfactory and speedy recovery.

Anthrax.—From a careful study WISSOKOWICZ (*Fortschritte der Med.*, 1892, Nos. 11 and 12) has found that cases of cutaneous anthrax occur in man in which, in the course of the general disease, the anthrax-bacilli disappear from the primary focus. In all cases at not too early a stage the death of the bacilli may be observed at the periphery of the diseased area, without the participation of leukocytes. The dissemination of the anthrax-bacilli from the primary subcutaneous focus takes place in the rabbit (and probably likewise in man) exclusively by the lymph-stream. The bacilli that find their way into the blood at the conclusion of the illness are not excreted by the liver or the spleen, in contrast with what occurs when bacilli are experimentally injected into the blood of a healthy animal. The elimination of virulent anthrax-bacilli also takes place through the capillary endothelium of various organs, without the participation of the leukocytes. Cells of organs unpoisoned by anthrax-toxines possess the capability of taking up living anthrax-bacilli; poisoned cells lose this property. The elimination of the bacteria from the blood in the organs and their taking up by the fixed cells of the connective tissue have but a secondary significance in the battle of the organism with the virus. The most important rôle belongs to the antiseptic (bactericidal) property of the tissue-fluids (the natural cell-products), and next, to the blood. On preserving, in the cold, the organs of animals dead of anthrax the number of bacilli rapidly diminishes in the course of twenty-four hours.

The Surgery of the Gall-bladder.—CZERNY (*Deutsche medizin. Wochenschr.*, 1892, No. 23, p. 516) thus summarizes his views on the surgery of the gall-bladder: Gall-stones require operation when they occasion repeated or persistent distress. Empyema of the gall-bladder demands operation; hydrops, if it occasions distress. The typical operation for stone in the bladder consists in incision, evacuation, and suture, the abdominal wound being drained for a short time. If the cystic duct be not patulous, if the gall-bladder is inflamed, if the contents have undergone marked change, a temporary biliary fistula should be established. The gall-bladder should be extirpated only in case of intense inflammatory conditions, or of carcinoma. If the common duct be occluded operation is absolutely indicated as long as the strength of the patient will allow. If the obstruction (stone or flexion) be not remediable, the best procedure is to establish a communication between the gall-bladder and the duodenum. The best mode of procedure is to make a hook-shaped incision, the vertical arm of which lies in the linea alba and the horizontal arm extends toward the right, just below the level of the umbilicus. Operation for gall-stones is attended with less danger than operation for vesical calculi.

Immunity to Cholera.—VINCENZI (*Deutsche medicin. Wochenschr.*, 1892, No. 18, p. 394) has found that the subcutaneous intra-pleural or intra-peritoneal injection of a drop of a bouillon-culture of cholera-bacilli causes in guinea-pigs extensive edema, followed by death in from twenty to thirty hours. The blood and the intestine of such animals contain living cholera-germs. Infection takes place by the intestinal tract only if the bowel be irritated, mechanically or chemically; alkalization of the stomach is unnecessary. The blood-serum of normal guinea-pigs is incapable of destroying the virulent cholera-bacilli when present. Animals treated with a filtrate of a bouillon-culture of cholera-bacilli are protected against infection. In immune animals the subcutaneous injection is followed by marked phagocytosis. The blood-serum of immune guinea-pigs transmitted to other animals confers immunity.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will upon publication be liberally paid for, or 250 reprints will be furnished instead of payment. When necessary to elucidate the text, illustrations will be provided without cost to the author.

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1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, Including Postage in North America.

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SATURDAY, JULY 30, 1892.

SHALL THERE BE A FOUR YEARS' COURSE?

WITH the recent action of the Association of American Medical Colleges the compulsory three years' course may be regarded as an accomplished fact. The advocates of advanced education are, however, not satisfied with this. The voluntary four years' course is an old thing; the compulsory four years' course, recently adopted by Harvard, by the Woman's Medical College of Pennsylvania, and by the University of Pennsylvania, is not now first heard of; but the agitation to make all of the schools of high grade four years' schools, and thus to draw as sharp a line between them and the "three-termers" as formerly existed between the "three-termers" and all but the exceptional "two-termers," is daily becoming more active.

At first sight, the movement seems worthy of enthusiastic encouragement. On further reflection, however, the thought occurs that perhaps the result aimed at can be more effectively accomplished by other means. If by three years' attendance upon college, under certain conditions, one can be as well and as thoroughly equipped for the duties of the physician as he could be by four years' attendance under present conditions, all will agree that the enforced loss of another year in pupilage may well be spared.

The present college-term occupies six months. Why should medical students have six months vacation, while other students are mentally and physically satisfied with three months vacation? Three terms of eight months each will surely give the student as much instruction as he can get in four terms of six months each, and will probably give him more instruction by enabling subjects to be thoroughly treated that are now unavoidably slurred over.

There is no good reason why the college-term should not be lengthened to eight months, or even to nine months, and there are many reasons why it should be so lengthened.

Then, again, much time is now wasted in all our colleges, even in those that require the highest standard of entrance-qualification, in teaching subjects with which the student should be thoroughly familiar before beginning his medical education; and many subjects that ought to be taught are omitted because even after three or four years' attendance upon lectures, the student lacks the necessary training to appreciate these subjects.

Chemistry and physics offer the most striking examples. Neither physiology, pathology nor therapeutics can be thoroughly understood by one who has but a superficial acquaintance with chemistry and physics; yet in no medical college in the United States is there even a pretence of a proper teaching of these fundamental sciences, or a proper entrance-qualification therein demanded. The year or two years spent in teaching elementary chemistry is that much time wasted, when viewed from the standpoint of modern medical science. Almost all that is now taught should be demanded as part of the qualification preliminary to entrance; and the medical student should be instructed in those now recondite mysteries of animal and vegetable chemistry, the chemistry of life, disease and death, through and by which the future triumphs of medical art and science are to be won.

Why is it that the brilliant researches of the day into the causation of disease, the processes of infection, recovery and immunity, the ultimate action of drugs in the animal economy, are so much Greek to the average American physician? Simply because he has not been taught the chemical A B C of the language in which these researches are conducted.

With physics the case is even worse. Men may be admitted to medical schools who scarcely

understand what is meant by the center of gravity, who know nothing of the laws of light, and who have but the vaguest idea of electricity as something that gives shocks and is somehow concerned in telegraphy and other modern wonders. Of what earthly use is it to talk to such men of blood-pressure, of refraction, of molecular vibration? They may learn how to manipulate trial-lenses and test-types, how to place sponges on nerve and muscle-points, and even to avoid the use of digitalis in patients with marked atheroma; but it is all in a bungling apprentice fashion; it is mere simian imitation; there is no intelligent understanding of anything beyond the simplest mechanical routine.

In every college there should be a chair of Medical Physics co-equal with the chair of Medical Chemistry, and the entrance-qualification in chemistry and physics should be such as to leave the chairs free to teach the advanced technical chemistry and technical physics necessary to a complete medical education. This, in turn, would necessitate a knowledge of mathematics possessed by few of the present race of medical students.

In languages, a fair knowledge of elementary Latin and Greek should be required—but likewise some acquaintance with French and German; for while it is true that a knowledge of results can be obtained by the student from his teachers and from English medical literature, yet the reading of certain great monographs in the original is in itself an introduction to methods of investigation and habits of thought of no mean importance in moulding the career of the physician.

Thus, if a fourth year is to be added to the term of medical study in America, it can best be added as a preparatory course; offering to those without adequate preliminary training in the fundamental natural sciences and in the necessary languages the opportunity to equip themselves. It should not be required of those already thoroughly equipped. Such a preparatory course could also well include an introduction to biology and technical training in the use of the microscope; and indeed Harvard will, under the new rules, admit to advanced standing graduates of scientific or classical schools in which histology, anatomy, physiology and chemistry are taught. An adequate biologic course should likewise be added to the first and second years' studies; and in time this should be gradually advanced and enlarged and a preliminary biologic qualification be required.

If, then, the qualification for matriculation at colleges of medicine be made adequate; if the terms be lengthened to eight or nine months each, and if the third year be largely devoted to clinical work, we see no necessity for a compulsory four years' course for the medical practitioner. Those who desire to be investigators and teachers, or to devote themselves to special lines of work, should have the opportunity of electing certain additional laboratory or clinical courses for a fourth, a fifth, or a sixth year of study. Some fitting recognition might be devised as reward for such additional devotion to science.

The Medical Department of Grant University at Chattanooga offers two diplomas—the ordinary diploma for the present two years' course, and a different diploma for three years of study. So too, the Medico-Chirurgical College of Philadelphia offers the degree of M.D. *cum laude* for four years' work. A better, though we fear impracticable, plan would be the granting of the degree of Bachelor of Medicine (with the right to practise, subject to State laws) after three terms of eight months each, and the doctorate in recognition of one or more terms of additional work at any subsequent time.

THE DIFFERENTIAL DIAGNOSIS OF RÖTHELN, MEASLES, AND SCARLATINA.

IT is only within the last quarter of a century that Rötheln has been fully recognized as a distinct disease. Previously it had been regarded by some as an irregular form of scarlet fever; by others as an irregular form of measles, and by a third group of physicians as a hybrid of these two diseases. There were yet others who looked upon it not as an exanthem at all, but as a mere symptomatic rash, like urticaria or erythema; hence it came to be occasionally described as an epidemic roseola.

The early observations of STEINER, THOMAS, and others, and the more recent studies of such close observers as CHEADLE, EDWARDS, and GRIFFITH not only leave no room to doubt that Rötheln is a specific, infectious, and highly contagious disease, but they have also determined its constitutional and cutaneous characters with exactness, and its entire independence as a substantive affection. The descriptions of these observers, however, and those of other writers upon the subject by no means tally, and the practitioner who, for the first time finding himself in the midst of an epidemic of an eruptive disease

that, from his general reading, he suspects to be Rötheln, turns to his books and looks for the accounts of this disease one after another, will probably end in confusion worse confounded.

The cause of these wide differences is fourfold. First: Rötheln is a comparatively new or newly-known disease, and the observer who has not yet beheld it in all its phases places upon record views necessarily incomplete. Second: It is a disease of wide divergence from type, not alone as regards individual cases, but even as regards whole and extensive outbreaks. Therefore, one who has seen much of it may readily mislead himself into the belief that his description covers the entire ground. Third: It is a malady intensified to a remarkable degree in public institutions, in which it occurs with a severity not seen in private practice. The asylum physician, therefore, describes a disease unknown to the most experienced outside practitioner. Finally: The traditions still have a measure of influence, and here and there may be detected more stress upon its likeness to measles or scarlatina than upon its unlikeness to them, or upon the trenchant lines that separate all three.

It is thus no matter of wonder that the differential diagnosis between Rötheln and measles, on the one hand, and scarlatina, on the other, still vexes the minds of practitioners. If all three diseases were equally unimportant, and the diagnosis were without bearing upon immediate action for the prevention of outbreaks of grave disease in households, schools, or communities, the physician might, in a given case, be permitted to temporize. But it is not so. The public demands and the physician feels himself impelled to an early decision. The period of isolation for the settling of doubts must be short. *Omne ignotum terribile.* The case in question, mild as it is, may be a case of scarlet fever or measles—a choice of evils in a school.

In contrast with measles and scarlatina Rötheln presents as a rule slight and transient fever or other constitutional disturbances; often so trifling as to attract little attention, often absent altogether. The eruption appears early; it is in many cases the earliest manifestation. It is irregular in character and distribution. It commonly appears first about the head and face, and sometimes resembles that of measles; but the macules are of a brighter pink and do not tend to the crescentic arrangement; less often it resembles that of scarlet fever; but it is paler. It appears and disappears irregularly over the surface, so that a fresh patch may show itself just as a patch elsewhere is fading. Catarrhal manifestations are slight and as a rule restricted to the upper air-passages. The lymphatic glands of the neck are more or less swollen, the posterior rather than the anterior chains being infiltrated; and this is an early symptom. At the end of four days, sometimes as late as the fifth or sixth day, the rash vanishes without desquamation, save where it has been unusually intense.

Throat-symptoms, if present at all, are trifling and unlike those of scarlatina; catarrhal bronchitis does not occur; the initial fever, when present, subsides slowly rather than abruptly, and is insignificant; the temperature does not often reach 101° F.; moreover, the pyrexia is transient, differing in all these respects from that of measles and that of scarlatina. Chill, convulsions, and vomiting do not mark the invasion. If the eruption suggests measles of a mild type, the constitutional symptoms declare for Rötheln; if the rash resembles that of an atypical scarlet fever, the absence of the characteristic general disturbances of the latter points the way to a diagnosis.

Cases of Rötheln occur, as in the other eruptive diseases, in which for a time the diagnosis is impossible, but, in proportion as we attach importance to the broad distinctive traits of the disease and ignore minor symptoms, the number of these cases rapidly diminishes.

THE RETIREMENT OF PROFESSOR DA COSTA FROM JEFFERSON MEDICAL COLLEGE.

WE are authoritatively informed that PROFESSOR DA COSTA will not again take part in the clinical lectures at Jefferson Medical College. This announcement can occasion only profound regret among the friends and alumni of the college, with whom the name of DA COSTA stands for the embodiment of what is best and noblest in medicine and as representative of the ideal in teaching. DR. DA COSTA'S resignation from the Chair of the Practice of Medicine is yet fresh in memory. By the action of the Board of Trustees of the College he was made Emeritus Professor in the department that he had for so many years conducted with such signal ability and distinction, and upon the invitation of the Faculty he delivered his usual course of clinical lectures last winter. DR. DA COSTA has now withdrawn from all teaching connection with Jefferson College. He will, however, continue as Visiting

Physician to the Pennsylvania Hospital, and in connection therewith will deliver the usual course of clinical lectures.

REVIEWS.

TEXT-BOOK OF THE ERUPTIVE AND CONTINUED FEVERS. By JOHN WILLIAM MOORE, B.A., M.D., M.Ch., University Dublin; Fellow and Registrar of the Royal College of Physicians of Ireland; Physician to the Meath Hospital, Dublin, etc. 8vo, pp. xxv, 535. New York: William Wood & Co., 1892.

IT is a great pity that a book so full of information, so philosophic in its conception, so lucid in its expression as is the one before us, should be so badly printed as to destroy the pleasure that would otherwise be experienced in reading it.

It begins with an Introduction, the successive chapters of which treat of the intimate nature of fever, the intimate nature of contagion, the micro-parasitic diseases, and the general principles of treatment of the eruptive and continued fevers, the latter topic being subdivided into two heads—preventive treatment and curative treatment.

Part II. deals with the exanthemata, under which head the author includes erysipelas. Part III. deals with the continued fevers—febricula, typhus, typhoid and relapsing fevers; while the concluding chapter reviews recent investigations into the subjects of infection and immunity. There is an excellent index.

The author treats fully and intelligently of the pathology, the symptomatology in detail, the diagnosis, prognosis, and treatment of the various diseases studied. He has drawn freely upon literature, classic and ephemeral, but everything has been subjected to the touchstone of his own rich experience and ripe judgment.

The book is a welcome addition to literature, and will be extremely useful alike to the practitioner of experience and the younger man seeking safe guidance and wise counsel.

SPECTACLES AND EYE-GLASSES: THEIR FORMS, MOUNTING, AND PROPER ADJUSTMENT. By R. J. PHILLIPS, M.D. With forty-seven illustrations. Philadelphia: P. Blakiston, Son & Co., 1892.

IN writing this most excellent little treatise, Dr. Phillips has performed a genuine service alike to the profession, the trade of the optician, and the public. So much was the work needed, and so well is it done, that even a slight word of criticism seems ungrateful. Even those who know the great medical importance of a proper correction of errors of refraction have generally or often been sadly neglectful of a matter that is of exactly equal importance—the proper manufacture and fitting of the spectacles. Both physician and, strange to say, the optician, have been unaccountably indifferent in the matter. It is to be hoped that this little volume may help toward a recognition of the mistake, and may possibly lead to larger and completer, more detailed, handbooks upon the subject. In the reviewer's opinion, Dr. Phillips should have been far less lenient as regards eye-glasses, inferior therapeutically as they generally are to spectacles. And he should not have failed to condemn emphatically and explicitly the flimsy, good-for-nothing, limp, and stringy temple wires and bridges commonly sold by the commercialized optician.

TRAITEMENT DES PLEURÉSIES PURULENTES. Par G. M. DEBOVE et M. COURTOIS-SUFFIT. Small 8vo, pp. 231. Paris: J. Rueff et Cie, 1892.

THIS is the second of a series of neatly bound and inexpensive books written by standard authors and issued under the direction of Charcot and Debove. The work starts out with the proposition that purulent pleurisy is not a single morbid entity, but that the process differs and the therapeutic procedure must be selected in accordance with the differing pyogenic organisms present. The subject is presented in three parts. In the first part the evolution of the current methods of treatment is traced. The second part considers these methods in detail, together with an analysis of their *rationale*, the indications for their individual selection, the dangers of operation, and the means of obviating them. In the third part of the work, the different varieties of purulent pleurisy, with their distinguishing clinical characteristics, and the respective indications for treatment are presented. The book can be cordially commended and may be read with much profit.

SOCIETY PROCEEDINGS.

AMERICAN OTOLOGICAL SOCIETY.

Twenty-fifth Annual Meeting, held at New London, Conn., July 19th, 1892.

THE Society was called to order by the President, DR. GORHAM BACON, of New York.

DR. OREN D. POMEROY, of New York, read a paper entitled "Cases of Mastoid Disease Exhibiting Somewhat Extensive Carious Processes." He reported six cases in which no effort was made to remove all of the dead bone, but whatever was loose or readily detachable was taken away. Adequate antiseptic drainage was carefully looked after, and the vital energies were kept up by stimulants, tonics, food, and proper nursing.

It seems unaccountable that only one of these cases resulted fatally, when it is known that any considerable quantity of dead bone in the vicinity of the brain may induce fatal cerebral disease. It does not seem proper to attempt the removal of dead bone if the meninges are in danger of being encroached upon.

Numerous cases are on record in which a considerable portion of the bone has separated, leaving uncovered meninges, without fatal consequences. Moreover, when all the dead bone is removed, reparative action does not commence until a new barrier of dead bone has been established.

DR. B. ALEXANDER RANDALL, of Philadelphia, presented "Preliminary Notes on Craniometric Studies in Relation to Aural Anatomy." Only 122 skulls, 73 broad-headed, 33 long-headed, and 16 medium in index were used in the tabulation, and the only clear showing was that maximum or minimum dimensions might be found on either side and in any form of skull. The

greater danger of the right side and of the brachycephalic skull receives slight confirmation, the cerebral fossa being actually more often lower on the left; but no deductions should be attempted from so small a series of cases, and any indications are probably worthless that are derived from less than one thousand skull-measurements.

DR. CHARLES J. KIPP, of Newark, N. J., reported "A Case of Purulent Inflammation of the Middle Ear, with Double Optic Neuritis and Other Symptoms of Intracranial Lesion, but without Tenderness of the Mastoid Process, in which the Opening of the Mastoid Cells was Followed by Rapid Subsidence of the Optic Neuritis and Cure of the Disease." Particular attention was called to the absence of tenderness over the mastoid process even on percussion, and to the desirability of repeated opthalmoscopic examination in prolonged middle-ear disease.

DR. C. J. BLAKE, of Boston, read "A Report of Mastoid Cases." Of twenty-five cases of mastoid congestion and inflammation seen in the first six months of this year, three were treated by the continuous cold coil with excellent effect; twenty-two were operated on at various stages and with various complications. Two cases died; one, complicated with pneumonia, on the ninth day; and the other, with meningitis from extension of the suppurative process from the middle ear through the tegmen tympani, on the tenth day.

DR. H. KNAPP, of New York, reported "A Case of Chronic Purulent Otitis Media; Old Pulmonary Tuberculosis; Opening of Mastoid; Death from Acute Basilar Meningitis; Autopsy." The patient was a man of thirty-five, who complained of headache. The temperature rose slightly, but there was no tenderness over the mastoid process. Subsequently, drowsiness developed, with nervous movements of the hands. For three years there had been a discharge from the right ear, which ceased for a week. The temperature reached 102.2°. There was headache, stupor, incoherence and difficulty of speech, and delirium. The pupils and fundus were normal. There was no pain on percussion of the skull. The mastoid process was opened and found sclerotic throughout. The superficial portion of the bone presented some evidence of disease, but the deeper parts appeared healthy. The patient sank and died a few days after the operation. The autopsy disclosed the existence of basilar meningitis and the lungs presented evidences of pulmonary tuberculosis.

DR. J. B. EMERSON, of New York, reported "A Case of Pyemia Following Acute Suppurative Otitis: Recovery." The patient was a woman, twenty-four years old, who, following an attack of influenza, had pain in the left ear, followed by a purulent discharge. While under observation, signs of septic pneumonia appeared. Successive abscesses developed over the right sterno-clavicular articulation, over and above the sternum on the left side of the neck. The patient, nevertheless, slowly and steadily improved, the treatment extending over a period of four months.

DR. T. Y. SUTPHEN, of Newark, N. J., read a paper entitled "Mastoid Operation in a Case of Middle-ear Disease, with Septicemic Symptoms and Cerebral Complications." The case was that of a girl, sixteen years old, with chronic otitis media of the left ear for several years. For a few days there had been intense pain and a temperature of 105°. There was no sign of mastoid trouble other than the pain. General septicemic symptoms appeared. A hard swelling was discovered beneath the sterno-cleido-mastoid muscle. The mastoid process was opened. Only a drop or two drops of purulent fluid were found. The condition of the patient continued unfavorable until pus began to flow freely from the mastoid wound. The temperature then fell to 99°, and the patient made a rapid recovery.

DR. GORHAM BACON, of New York, reported "A Case of Mastoid Disease Following an Operation for the Removal of Adenoid Vegetations." The patient was a woman, thirty years old, who had had adenoid vegetations removed from the naso-pharynx during an attack of subacute pharyngitis. Two days later she had severe pain in the right ear, followed by a muco-purulent discharge. Symptoms of mastoid disease being present, she was immediately put to bed, a Leiter coil applied, and the ear douched frequently with a warm boric acid solution. The mastoid symptoms soon disappeared.

Subsequently a periosteal abscess on the right side was opened and about a dram of pus escaped. The patient made a good recovery, and at no time did the temperature rise above 100° F.

DR. SAMUEL THEOBALD, of Baltimore, read a paper "On the Value of Weak Solutions of Bichloride of Mercury in the Treatment of Otitis Media Suppurativa." He reported good results from the employment of weak solutions (usually 1 to 8000) of mercuric chloride, with which the ear is simply syringed. In otorrhea it was usually not necessary to repeat the syringing more than once in twenty-four hours.

DR. H. KNAPP, of New York, exhibited a specimen showing perforation on the medial side of the mastoid, removed from a patient dying from cranial abscess.

DR. D. B. ST. JOHN ROOSA, of New York, read a paper entitled "Wound of the Lateral Sinus in the Course of Mastoid Operation, Followed by Septicemia, with Recovery." The patient was a young woman, twenty-three years old, who for years had had recurrent attacks of suppuration of the left ear. It was thought that the mastoid process was carious, and it was decided to open it by means of the drill. A large cavity was found, from which issued a gush of venous blood, which could not be checked by ordinary means. It was believed that the lateral sinus had been perforated. The wound was plugged with iodoform-gauze. Four days later, when the wound was dressed, there was no trouble from bleeding. Symptoms of septicemia then set in, but after two months of expectant treatment the patient completely recovered.

DR. F. L. JACK, of Boston, read a paper entitled "Remarkable Improvement in Hearing by Removal of the Stapes." He reported the case of a girl, twelve years old, with chronic suppurative otitis, in which portions of the membrani tympani, the malleus, the incus, and the stapes were removed. There was little hearing in the affected ear. On the morning following the operation the hearing was much better.

DR. C. J. BLAKE, of Boston, read a paper entitled "Middle-Ear Operations." He stated that in chronic non-suppurative disease of the middle ear, when surgical interference is determined upon on account of

obstruction to the sound-transmission through the ossicular chain, the removal of the incus or malleus may be considered as merely incidental, since the stapes is the important element. Various procedures for the immobilization of the stapes have been proposed and practised, but the removal of the stapes has until recently been left out of serious consideration. The justification of this procedure is to be premised from the fact that the stapes is especially liable to be tied down by the reduplications found in about 80 per cent. of normal ears.

DR. B. ALEXANDER RANDALL, of Philadelphia, read a paper entitled "Excision of Membrane and Malleus for Catarrhal Deafness, Followed by Suppuration, Mastoid Empyema, and Burrowing Abscess of the Neck." The case was one in which ordinary methods proved unsuccessful. The incus was pushed up and not extracted. Five days after the operation, marked febrile symptoms appeared and a profuse muco-purulent discharge set in. In the course of four weeks, it was clear that a mastoid empyema was breaking into the digastric fossa. An incision was made over the mastoid, the pus evacuated, the bone sinus scraped, and the outer surface of the mastoid trephined, opening the antrum freely. On irrigation the fluid found its way into the pharynx by a lower opening; the temperature fluctuated greatly during the following fortnight, with oculo-motor paresis, diplopia, and some mental aberration, suggestive of intra-cranial abscess. Recovery ultimately ensued, but there was no improvement of hearing.

DR. D. B. ST. JOHN ROOSA, of New York, reported "A Case of Exostosis of the External Auditory Meatus." The patient was a woman forty-six years old, who for twenty-one years had impairment of hearing and tinnitus in the right ear, and at times pain in both ears. The external auditory canal was almost completely closed by a bony growth at the junction of the osseous and cartilaginous portions. The woman could hear a watch only on contact. The mass sprang from the posterior wall, and left a small space between it and the anterior wall. On operation it proved to be a very thin plate of bone, and was removed by the chisel without difficulty. The patient did well, and the hearing distance for the watch became 12/XL.

DR. C. J. BLAKE, of Boston, stated that in two different families he has seen multiple exostoses occurring in three generations, in grandfather, father, and son.

DR. R. A. REEVE, of Toronto, reported a case of exostosis of the meatus, in which the growth had become so large as to press upon the tissues of the opposite wall of the canal, causing intense suffering and demanding operation.

DR. E. E. HOLT, of Portland, Me., exhibited an ear bitten off by a horse, and made a brief report of the case.

DR. C. J. BLAKE, of Boston, exhibited the plans for the new Aural Building of the Massachusetts Charitable Eye and Ear Infirmary.

The following officers were elected: *President*, Dr. Gorham Bacon, New York; *Vice-President*, Dr. Huntington Richards, Des Moines; *Secretary and Treasurer*, Dr. J. J. B. Vermyne, New Bedford, Mass.; *Member of Executive Committee of Congress of American Physicans and Surgeons*, Dr. William H. Carmalt, New Haven; alternate, Dr. F. B. Loring, Washington.

The following were elected to membership: Dr. J. Elliott Colburn, of Chicago, Ill.; Dr. Robert Tilley, of Chicago, Ill.; Dr. B. F. Milliken, of Cleveland, O.

NEWS ITEMS.

University of Pennsylvania.—The *compulsory four years' course* goes into operation with the session beginning October 2, 1893. It is announced that as a desire has been expressed by some students to avail themselves of such a course at once, it has been decided to offer the opportunity of a full four years' graded course to those who desire it with the opening of the next session beginning October 2, 1892.

Dr. Tyson has resigned the position of Dean, and Dr. John Marshall has been chosen to succeed him.

The National Popular Review is the name of a new "illustrated journal of preventive medicine and applied sociology for the profession and the people," published at San Diego, and under the editorial charge of Dr. P. C. Remondino. The first number bears date of July, and contains a number of interesting articles, excerpts, and reviews. The subject-matter is of such a character as will likely attract professional and popular interest.

Yale University.—At the recent graduation exercises of the Medical Department of Yale University the degree of Doctor of Medicine was conferred upon twenty-two graduates. Dr. George M. Sternberg, U. S. A., read the Annual Address in Medicine, on "The Etiology of the Infectious Diseases, with the Explanation of Acquired Immunity from these Diseases."

University of Vienna.—Otto Bergmeister has been elected Professor Extraordinary of Ophthalmology; Josef Englisch, Professor Extraordinary of Surgery; Ferdinand Hochstetter, Professor Extraordinary of Anatomy; Alexander Kolisko and Richard Paltauf, Professors Extraordinary of Pathologic Anatomy.

Rush Medical College.—Dr. Charles Warrington Earle has been called to the chair of Obstetrics and Diseases of Children in Rush Medical College, recently made vacant by the death of the late Professor Knox. Dr. A. C. Cotton has been elected Clinical Professor of Diseases of Children.

The American Therapist is the name of a new monthly, the initial number of which is dated July. Dr. John Aulde is the editor.

Pravaz, the inventor of the hypodermatic syringe, died recently at Lyons.

BOOKS AND PAMPHLETS RECEIVED.

Elements of Materia Medica and Therapeutics, including the Whole of the Remedies of the British Pharmacopeia of 1885 and its Appendix of 1890. By C. E. Armand Semple, B.A., M.B. Cantab., M.R.C.P. Lond. With 440 Illustrations. London: Longmans, Green & Co., 1892.

The Pathology and Rational Treatment of the Uric-acid Condition. By James Wood, M.D. Reprint, 1892.

The Pulmonary Complications of Influenza. By J. M. Da Costa, M.D., LL.D. Reprint, 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, AUGUST 6, 1892. NO. 6.

ORIGINAL ARTICLES.

INFLAMMATION IN THE RIGHT ILIAC FOSSA, ASSOCIATED WITH LESION OF THE CECUM, THE VERMIFORM APPENDIX AND ADJACENT TISSUES.[1]

BY JOHN B. DEAVER, M.D.,

PROFESSOR OF SURGERY IN THE PHILADELPHIA POLYCLINIC; ASSISTANT PROFESSOR OF APPLIED ANATOMY IN THE UNIVERSITY OF PENNSYLVANIA.

IT was with no little hesitancy that I selected for the subject of my remarks "Inflammation in the Right Iliac Fossa, Associated with Lesion of the Cecum, the Vermiform Appendix and Adjacent Tissues," as I was conscious that the part of the subject coming especially under the head of appendicitis is one upon which much has been written. My apology, therefore, is that I hope to present it in a somewhat different manner than it is usually dealt with, and, to insist upon the importance of the surgeon being called in counsel earlier than has been the custom. So often have I been impressed with the responsibility of the position of the physician who is called to treat cases of this character and does not seek the advice of the surgeon until the eleventh hour, when, perchance the patient has developed a diffuse peritonitis, or is in a state of collapse, most commonly caused by the rupture of an abscess, that I feel warranted in offering this suggestion.

Inflammation in the right iliac fossa, associated with lesion of the cecum, the vermiform appendix and adjacent tissues, can be divided clinically into two classes, namely, intra-peritoneal and extra-peritoneal. The former includes the cases referred to in the text-books as those of appendicitis, typhlitis and peri-typhlitis. I propose the term intra-peritoneal inflammation to include all cases of inflammation in the right iliac fossa having their origin within the peritoneum and associated with lesion of the cecum or the appendix, for the following reasons: 1. I believe it impossible to differentiate between appendicitis, typhlitis and peri-typhlitis. 2. I believe the terms typhlitis and peri-typhlitis to be misleading, and so long as it is taught that they are distinct affections, independent of trouble with the appendix, will the physician be misled. As a result of this classification, there is delay from day to day, in the hope that the case is one either of typhlitis or peri-typhlitis, and that operation is not so urgently called for as were the case one of appendicitis. I consider it nothing more than a mere refinement to divide inflammation of the cecum, as is done, into inflammation of the gut proper and inflammation of its serous covering (peri-typhlitis). I cannot see the practical value of such a division, as both conditions require a common treatment, and further, I do not believe it possible to make the differentiation at the bedside.

It has been my fortune to have seen a large number of cases of inflammation in the right iliac fossa, as well as to have operated on many, and I think I have clearly demonstrated that the best classification of the three pathologic conditions, appendicitis, typhlitis and peri-typhlitis, is under the head of intra-peritoneal inflammation in the right iliac fossa. In the greater number of cases of inflammation in the right iliac fossa the vermiform appendix is the organ primarily attacked; yet there are cases, as has been demonstrated post-mortem, in which the cecum alone is the seat of the trouble. Again, I believe, as do most observers, that when post-mortem both the cecum and the appendix are found to have been the seat of inflammation the starting-point has been in the appendix. Granting, then, that there are three pathologic conditions included in intra-peritoneal inflammation in the right iliac fossa, and that it is only in exceptional cases that the diagnosis between typhlitis and peri-typhlitis can be made, is it not safer and more rational to dispose of all three conditions as one? The differentiation is to be compared with the attempt to recognize the different coverings of the strangulated hernia: while anatomically there are several coverings, these are practically indistinguishable. The differentiation between typhlitis and peri-typhlitis, I think, requires an astuteness greater than we are willing to concede even to the most expert.

Extra-peritoneal inflammation in the right iliac fossa includes the class of cases in which the tissues adjacent to the cecum and the appendix are involved and constitutes para-typhlitis. While I do believe that there are cases of extra-peritoneal inflammation (para-typhlitis) that originate independently of any trouble in the appendix, and involve simply the connective tissue adjacent to the cecum, I do not deny that the starting-point of such an in-

[1] Read at the Twelfth Annual Meeting of the Lehigh Valley Medical Association, held at Bethlehem, Pa., July 7, 1882.

flammation may not be in the appendix. The latter condition may arise when the appendix is an extra-peritoneal organ, as when it lies posteriorly to the cecum and the ascending colon. When the appendix is post-cecal, as well as post-colic, and is the seat of ulcerative inflammation, it is readily understood how, by extension by continuity of tissue, the inflammatory process may involve the connective tissue adjacent to the appendix, and thus occasion a so-called para-typhlitis. This anomalous position of the appendix, when the seat of perforative appendicitis, further accounts for extra-peritoneal collections of pus in the right iliac fossa due to appendicitis and not (in every instance) consequent solely upon inflammation of the connective tissue in the neighborhood of the cecum. It likewise explains why abscess, the result of an appendicitis, does not always point internally to the anterior superior spine of the ilium, but may from its position simulate peri-nephric or lumbar abscess. An intra-peritoneal inflammation starting as an appendicitis and forming a circumscribed swelling, shutting itself off from the general peritoneal cavity by the formation of adhesions, may go on to pus-formation and even rupture into the peri-cecal and peri-colic tissues.

With a knowledge that all inflammations in the right iliac fossa associated with lesion of the cecum, the vermiform appendix and the adjacent connective tissue are divisible into intra-peritoneal and extra-peritoneal, our first duty is to distinguish between them. This we will do under the following heads: 1. *History.* 2. *Symptoms.* 3. *Physical Examination.*

HISTORY.

Extra-peritoneal Inflammation.	*Intra-peritoneal Inflammation.*
Usually constipation.	Constipation the exception rather than the rule.
Very slow onset, particularly if not caused by injury inflicted from without.	Onset sudden.
	There may have been one or more attacks before. Likely to follow a very heavy meal, eaten in a hurry, or the ingestion of indigestible food.

SYMPTOMS.

Pain confined in great measure to the outer part of the iliac fossa in the line of the loin. Constitutional disturbance not at all pronounced early. Disposition, when standing, to incline to the right side, soon followed, if the trouble does not abate, by flexion of the thigh upon the abdomen. Numbness and pain in the right leg frequently complained of. When the inflammatory deposit is great enough to exert pressure upon the right iliac vein there will be edema of the right leg.

In most cases, pain at first referred to the umbilical and epigastric regions, but later to the right iliac fossa. Nausea early and very often vomiting, which becomes uncontrollable if the case does not yield to active treatment. Thirst, which may be extreme. Furred tongue. Bowels usually confined, but there may be a slight tendency to diarrhea. The temperature ranges from 101° to 103°, or higher, with a rapid pulse-rate. Here, too, there may be a disposition on the part of the patient to incline the body to the affected side, as well as to flex the limb upon the abdomen. Very often, frequency of urination.

PHYSICAL EXAMINATION.

Extra-peritoneal Inflammation.	*Intra-peritoneal Inflammation.*
Tenderness above the crest and externally to the anterior superior spine of the ilium and in the line of the loin.	General tenderness over the right iliac region is very marked.
	In the majority of cases I have not found the greatest amount of tenderness at any one point in the fossa, as has been described by McBurney. Yet, in a few cases, I have seen it most pronounced at the so-called McBurney point.[1]
Dulness followed by flatness, at first upon deep percussion, and later upon superficial percussion in the line of the crest of the ilium.	Superficial percussion in the very early part of the case yields negative information, while deep percussion will reveal dulness, and later flatness, as the case steadily advances.
If the case steadily progresses, a mass corresponding in position with the area of dulness will be detected.	Palpation detects very decided resistance offered by the abdominal muscles of the affected side.[2]
	In many cases an indurated mass is detected by palpation of the abdominal wall, which, in many instances, is circumscribed, while in others it becomes rapidly diffused, particularly in the direction of the linea alba and of the pelvis.
Digital examination through the rectum yields negative information. Vaginal examination may be of some value, and should at least be made.	Deep rectal, as well as vaginal, examination[3] I do not regard of much diagnostic importance, early in the case at least. In those cases in which the appendix holds its third position, I regard it of value.
If suppuration takes place, it is usually first manifested by edema of the abdominal walls overlying the mass. Fluctuation is more readily made out than in intra-peritoneal inflammation.	Suppuration is not so readily dectected in this as in the extra-peritoneal form, as fluctuation is more difficult to elicit. Yet I have seen it moderately well pronounced many times.
	If the mass can be felt through the rectum or the vagina it is well to palpate the abdominal walls at the same time, and in this way elicit fluctuation.
	Edema of the overlying abdominal walls I have not found present as often in the intra-peritoneal inflammation as in the extra-peritoneal. If associated with the presence of a mass in either variety of inflammation there are decided chills and sweats, it would be very evident that pus is present.

CASE I.—W. R., thirty-eight years old, seen in consultation, presented a swelling in the right iliac fossa, extending backward in the line of the loin; edema of overlying abdominal walls; a rather sharply defined mass. The thigh was flexed on the abdomen. The temperature had been fluctuating

[1] This point I regard as more useful in approximately locating the site of the base of the appendix than as a diagnostic sign. If the inflammation is most intense in the terminal portion of the appendix, as well as in the class of cases in which the appendix is anomalously located, of what value can this so-called point be? I consider it of no significance whatever in helping to arrive at a correct conclusion as to the nature of a given case.

[2] This I regard as an important sign to be considered in the diagnosis.

[3] When I speak of deep rectal examination, I mean introduction of the finger alone, and not the introduction of the hand, as has been suggested. The latter I consider a most deplorable measure.

for several days, and there had been chills and sweats. The history was one of slow onset, with pain in the right iliac fossa, extending to the loin.

A diagnosis of extra-peritoneal inflammation was made, and operation advised. An incision was made in the right semi-lunar line down to the transversalis fascia, which was opened, and the sub-peritoneal fat exposed, when, after a little dissection, carried backward in the direction of the loin, a large quantity of pus was evacuated. The cavity was washed out, drained, and packed with iodoform-gauze.

Palpation of the peritoneum, which was clearly exposed, over the site of the appendix, yielded negative information. Recovery was complete and uneventful.

CASE II.—R. B., twenty-two years old, was admitted to the German Hospital for acute abdominal trouble. The temperature was 102°; the pulse-rate 112. The woman had been sick for three days. There was abdominal pain, most intense in the region of the umbilicus; and diarrhea, followed by constipation. The greatest amount of pain was now referred to the right iliac fossa. Examination of the abdomen elicited tenderness, especially pronounced over the right iliac fossa, with the presence of a distinct mass a little above and to the inner side of the anterior superior spine of the ilium. Deep vaginal examination detected a painful mass. Rectal examination was not satisfactory. Operation was advised. An incision was made in the right semi-lunar line, exposing the peritoneum, which on palpation presented the presence of an unquestionable mass. The peritoneum was incised, an abscess-cavity containing the vermiform appendix opened, and the appendix removed. The cavity was washed out, a glass drainage-tube introduced, and the wound packed with iodoform-gauze. Either end of the incision was closed with two sutures. Some days later, this cavity still containing a small amount of pus, a counter-opening was made through the loin into the cavity, and thorough drainage established. Recovery soon followed.

CASE III.—M. H., nineteen years old, was seen in consultation. The woman gave a history of having been taken suddenly ill five days previously, with nausea, severe pain in the right iliac fossa, accompanied by constipation. A tumor rapidly developed in the right iliac fossa, which, within thirty-six hours, extended in the line of the linea alba and of the pelvis. At the time of my visit the patient was vomiting almost incessantly, the stomach being practically non-retentive. The abdominal walls were decidedly rigid over the right iliac fossa, with very slight edema, and a diffused mass presenting questionable fluctuation. Rectal and vaginal examination yielded negative results. A diagnosis of intra-peritoneal inflammation was made.

An incision was made in the right semi-lunar line down to the peritoneum, which bulged into the wound, and upon palpation presented a fluctuating mass. The peritoneum was opened, and found to be adherent to the great omentum, which was distributed over the most prominent part of the mass. The incision was carried carefully through the omentum. In attempting to examine the underlying mass with the finger a large abscess-cavity was ruptured, giving exit to a quantity of fecal-smelling pus. The cavity was washed out with warm distilled water, and further examination made with the finger, when the cavity was found to be shut off from the peritoneal cavity by a limiting wall. The appendix could be neither seen nor felt. The cavity was drained by glass and rubber, and packed with iodoform-gauze. Recovery was uninterrupted.

CASE IV.—H. J., thirty-two years old, after eating a large quantity of peanuts, was seized during the night with violent paroxysms of pain in the right iliac fossa. Medication was resorted to for a few days without producing any good effect. When I first saw him the abdomen was tympanitic, the walls of the right iliac fossa tense, but not pitting on pressure, and an indistinct mass was discovered. The family strongly objected to operation. On the following morning the patient being worse, with persistent vomiting, I was hastily summoned. A diagnosis of intra-peritoneal inflammation was made, and operation advised. An incision was made in the right semi-lunar line, down to the peritoneum, through which a small tumor could be distinctly seen. The peritoneum over-lying the tumor was incised. The mass was opened, and about one ounce of pus escaped. The abscess-cavity was washed out, when by touch it was found to contain the appendix. The appendix was ligated, and was found to be perforated, as well as containing a small piece of a peanut. The cavity was packed with iodoform-gauze. Recovery ensued.

CASE V.—A. M., twelve years old. History of pain in the umbilical region. A tumor was found in the right iliac fossa, extending back into the loin. Resistance was offered by the overlying abdominal muscles. The temperature ranged from 100° to 102.° The patient was seen twelve days after the onset of the trouble with the attending physician, Dr. Stephen R. Ketcham, who told me that, until within a few days at least, he regarded the case as one of appendicitis, of which it had presented all the symptoms. The pain was now referred to the right costo-iliac space, which, when compared with the the opposite side, was found to be bulging, with edema of the overlying integument. Examination further revealed an unquestionable collection in the loin-space. The patient was removed to the German Hospital, where an incision was made in the loin, and a large quantity of fecal-smelling pus evacuated. The cavity was washed out and packed. Two days later the appendix was cast off through the wound with a quantity of fecal matter. A fecal fistula resulted, but spontaneous recovery ultimately ensued. This was in all probability a case of inflammation of an anomalously-placed appendix, resulting in an extra-peritoneal collection of pus, simulating a peri-nephric abscess.

CASE VI.—Mr. S., eighteen years old, became suddenly ill, with pain in the right iliac fossa, radiating to the region of the umbilicus. A day later the pain was much more severe, with distention of the abdomen and nausea. The temperature ranged

between 101° and 102.5°. The pulse-rate increased correspondingly. The bowels were moved by Rochelle salts. A mass about the size of an orange was now to be felt in the right iliac fossa. The pain becoming much more severe, and the abdomen enlarging, I was asked to see the case. I found the patient considerably better, the pain much less, the abdomen smaller, the mass less apparent. The man had gotten out of bed, when his bowels were copiously moved; the dejecta, it was stated, contained milk. With this history, I believed an intra-peritoneal abscess of the right iliac fossa to have ruptured into the cecum.

Operation not advised. Recovery ensued.

The use of the exploring or the hypodermatic needle, to determine the presence of pus, I do not think wise or judicious, and I believe it to be capable of doing much harm. It will be inferred that it is difficult to say when a case of inflammation in the right iliac fossa, associated with a lesion of the cecum, vermiform appendix, or the adjacent tissue, demands operation. The decision will be governed by the local as well as the general condition of the patient, and the result obtained by well-directed medical means. If the recently accepted treatment by means of mild purgation with salines, or calomel if the stomach rebels against salines, and the very moderate use of opium if necessary, fails to render the patient comfortable, to allay vomiting, to prevent abdominal distention, to produce liquid evacuations, the temperature remaining high or tending to rise, and the local trouble becoming more pronounced, with increase of abdominal resistance, tenderness, and induration, I at once and unhesitatingly advise operation. Constant retching, increasing abdominal distention, and obstinate constipation, are three conditions that, when associated, warrant immediate interference, granting that the patient's general condition does not contra-indicate interference. There is, I think, already a sufficient number of fatal cases on record in which treatment by opium alone in gradually increasing doses has been adopted in preference to operation, to disabuse the minds of both physicians and surgeons of the fallacy of such a course. After refusing to operate on many cases brought into the hospital in approaching collapse, with a diagnosis of peritonitis consequent upon an obstruction of the bowels, with hugely distended belly, incessant retching, with a history of the bowels not having been moved for four or five days, and death following in from eight to twelve hours, the autopsy showing the abdominal cavity flooded with pus, the vermiform appendix perforated if not gangrenous, the coils of small intestines greatly distended and matted together with layers of fibrinous lymph, I cannot conscientiously form any other opinion than that the attending medical man did not believe in operative treatment, or deferred calling the surgeon until the golden opportunity was a thing of the past. Under circumstances like these, the argument, Why not operate, if the patient is sure to die any way? is often brought forward. In answer to this, all that I can say is that it often requires better judgment to decide when not to than when to operate. The conscientious surgeon should always be willing to take desperate chances if there is the slightest indication of benefit to his patient, but certainly not otherwise.

In cases in which the symptoms and the local conditions are relieved by the treatment I have suggested, surgical interference should certainly not be considered. I recently operated upon a case of extra-peritoneal inflammation, with suppuration, referred to me by my friend, Dr. Charles Styer. Fluctuation being most pronounced in the loin, I carried my incision through this part and evacuated a considerable quantity of fecal-smelling pus. As the case was originally believed to be one of inflammation of the appendix, I exposed the appendix by an incision in the right linea semilunaris, when both appendix and cecum were found to be perfectly normal. This case, as well as others upon which I have operated, demonstrates beyond doubt, to my mind at least, that we meet with cases of extra-peritoneal inflammation associated with the bowel, arising independently, and not caused by intra-peritoneal irritation. This being so, is it not unwise to argue that every case of inflammation in the right iliac fossa arising in connection with the bowel, and going on to pus-formation, should be subjected to laparotomy? I am, therefore, forced to believe that the operative technique, as I have described it, is the safer procedure in dealing with inflammation of the fossa when it is impossible to say whether it is intra-peritoneal or extra-peritoneal, as is so often the case.

The operative technique for the relief of inflammation in the right iliac fossa associated with lesion of the cecum, vermiform appendix and adjacent connective tissue consists in exposing, first, the transversalis fascia and the sub-peritoneal fat, through the right linea semilunaris by a vertical incision of from four to six inches in length, the middle of which should correspond with the point at which a line drawn from the anterior superior spine of the ilium to the umbilicus intersects the semilunar line. The transversalis fascia and the sub-peritoneal fat having been exposed, if the inflammation be of the extra-peritoneal variety, and if pus be present, the fluid is very readily evacuated, while, at the same time, if the surgeon prefer, a counter-opening can be made well back in the flank, through which a drainage-tube can be introduced and the cavity thus drained to the best pos-

sible advantage, or the operation may be terminated after the manner of Parker. If the inflammation be of the intra-peritoneal variety, the peritoneum is taken up between a pair of hemostatic forceps and incised, when, if an abscess exists, it is evacuated, and the appendix removed, as the case may be. The abscess having been evacuated and thoroughly washed out, the appendix is sought for, care being taken not to break through the limiting wall of the abscess-cavity, granting that it is shut off by such a wall from the general peritoneal cavity. If the appendix is not to be seen or located, I at once complete the operation by either introducing a glass and a rubber drainage-tube to the bottom of the cavity, around which I pack iodoform-gauze, or simply pack the cavity with gauze, not using any drainage-tube. In the cases not under my care after operation I prefer to use the drainage-tube, and have it irrigated twice daily with Thiersch's solution, which when thrown into the rubber drainage-tube will escape through the glass tube, and *vice versâ*. The case progressing favorably, the gauze need not be removed for two or three days. When suppuration has decidedly lessened, the tubes are removed, the cavity washed out and packed with gauze, and healing by granulation promoted.

In the class of cases in which the general peritoneal cavity is involved, I make further search for the appendix if it is not to be seen or felt at the bottom of the wound, keeping in mind its three relations. Most commonly the appendix lies behind the terminal part of the mesentery, pointing in the direction of the spleen. The second most common position of the appendix is directly behind the ascending colon; in the third it dips down into the pelvis. To ascertain if it occupies the first position, it is necessary to lift up the cecum and the terminal portion of the ileum, when the retro-mesenteric space will be exposed. When it occupies the second position, it becomes necessary to lift up the cecum and probably the commencement of the ascending colon as well; this may necessitate dividing the external layer of the ascending meso-colon, which is selected in preference to the internal layer, as the bloodvessels that supply this portion of the gut are in relation with the latter. When the appendix holds the third position, it is more readily exposed, and in the female it is not uncommon to find it attached to the right uterine appendage. The appendix, having been exposed, is ligated close to the cecum and severed on the distal side of the ligature. It has been suggested to invaginate the stump of the appendix into the cecum, and stitch over it the serous covering of the latter. This procedure I have never had occasion to adopt.

In the event of the appendix having been separated from the cecum by ulceration, leaving an orifice of communication with the latter, I close the opening with two or more Lembert's sutures, if the margin of the opening is not infiltrated to too great a degree to warrant the removal of the diseased portion of the bowel. When the cecum is thus perforated by the separation of the appendix, and its coats are very much diseased, I believe it better practice not to attempt to close the opening, but simply to thoroughly drain the wound. My experience has been that the majority of fecal fistulæ of this character close spontaneously. If they do not, subsequent operation can be resorted to.

In Case V of the series here reported, a fecal fistula resulted, through which the evacuations continued to pass for some days. It ultimately healed without operative interference. The point to be borne in mind in cases of this character is the establishment of free drainage, thus preventing the passage of fecal matter into the peritoneal cavity. The probabilities are that in this class of cases the peritoneal cavity has been shut off from the perforated bowel by inflammatory exudation, thus explaining why recovery so often takes place under such circumstances.

From what I have said regarding the operative technique, it will be inferred that I disapprove of meddlesome interference, by which I mean, making a prolonged search for the appendix when it is not readily found. I have seen patients practically disemboweled in an eager search for the appendix, and even then it was not discovered. We know that prolonged exposure of the bowels is attended by profound shock, and is to be avoided if possible. The success of abdominal operations in general depends upon their being done with as much rapidity as possible, granting, of course, that every care is taken in each step of the operation. In work of this character I also disapprove of the introduction of the entire hand into the abdominal cavity, believing that, in the majority of cases at least, two fingers, the index and the middle, with, in some instances, the assistance of one or two fingers of the opposite hand, are sufficient to accomplish all necessary manipulation. We have all seen a sufficient number of cases of laparotomy for the removal of diseased uterine appendages, particularly cases of pyosalpinx, to know that the skillful surgeon accomplishes the removal with but two fingers; this holds good in cases of the character included in the subject of this paper.

The after-treatment consists in the administration of occasional doses of salines or calomel, depending upon the retentive power of the stomach, in order to have the bowels freely moved two or three times daily, and, if the patient suffers much pain, a small amount of opium. I do not

believe in the exclusive use of salines, both before and after operation, in cases in which pain has been an important factor, but I likewise give anodynes, being governed by the amount of suffering. On the other hand I very much disapprove of giving enough opium to mask the symptoms of the disease, as I regret to say is so often done. (Paralytic distention of the bowel, a most unfortunate complication in cases of advancing intra-peritoneal inflammation, is certainly favored by the administration of opium, when given to the extent of producing its physiologic effect.) Opium has held very much the same relation to abdominal troubles in the past as has blood-letting in the acute sthenic inflammatory affections. Both are still useful when properly employed. While I appreciate that opium not administered very cautiously in these cases is harmful, yet I do believe that restlessness and sleeplessness will be more hurtful to the patient than a judicious dose or two of the drug. On the other hand, active purgation by means of drastic cathartics, such as podophyllin and others of its class, I equally disapprove of, as I feel that the excessive peristalsis that is certainly brought about by these agents aggravates the local condition. I have said nothing about suturing the abdominal wound. This I do not approve of, with the exception of one or two sutures at the angles of the wound. In other words, I rely upon healing by granulation. I have found that ventral hernia is not any more likely to follow when the wound is treated in this manner than when it is sutured.

In my earlier operations for the removal of the appendix, in which I closed the wound with sutures, I made a counter-opening in the loin and introduced through drainage. By treating the wound by the open method this is not necessary.

SOME SUCCESSFUL METHODS OF TREATING ALOPECIA AND ALOPECIA AREATA.[1]

BY A. H. OHMANN-DUMESNIL,
PROFESSOR OF DERMATOLOGY AND SYPHILOLOGY IN THE ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS.

ALOPECIA and alopecia areata are diseases of the scalp that have always interested dermatologists. Their study has of late years received a new impetus by reason of careful investigations to which they have been subjected. The questions that have been mostly considered are the etiology and the treatment of these conditions. These are to a great degree independent, and for that reason it may not be regarded as inopportune to devote a few words to the consideration of the etiology before entering upon the subject-matter proper of this paper.

[1] Read in the Section of Dermatology and Syphilography of the American Medical Association, at Detroit, June, 1892.

In regard to the etiology, there exists considerable difference of opinion, and the advocates of the different theories advanced may be roughly divided into three groups, viz.: Those that contend that all cases of alopecia are of parasitic origin; those that contend that the origin of these troubles is of a neurotic character; and those that are inclined to favor the one or the other, according to the particular indications presented in each individual case. The upholders of the parasitic theory have apparently made out a strong case, but their arguments possess certain inherent defects of such a nature as to considerably invalidate their claims. The evidence is, in a large number of instances, far from convincing, and we have added to this the suppression of the negative cases, or of such experiments as do not tend to support the view advanced. The fact that strong antiseptics, locally applied, tend to promote a growth of hair is no proof that the result is due to the destruction of parasites or of pathogenic microörganisms. The further fact that these applications must be of considerable strength seems to invalidate the position still more; for it can be justly argued that the growth is due, not to the parasiticidal properties of the remedy, but rather to its stimulating qualities. Again, we have had exhibited to us cultivations of organisms obtained from such cases. Unfortunately for the cause advocated, these cultivations have but too often proved to consist simply of saprophytes, and could be obtained from organisms found on perfectly healthy scalps. I do not intend to deal exhaustively with these defects in the matter of proving the opinion advanced, but I merely desire to point out some possible sources of error to which investigators have been blinded by their enthusiasm.

Those that contend that alopecia and alopecia areata have a constant neurotic basis have a certain number of objections to contend with that they have not yet successfully overcome. They have very plainly demonstrated that in a certain number of instances the parasites are not the cause. They have also proved experimentally that lesions of certain nerves are followed by alopecia; but in some cases all of the neurotic phenomena discoverable have been treated with no beneficial results, even when aided by external stimulating measures. No results could be obtained until strong parasiticides were employed, and, while claiming merely stimulating properties for these agents, the obvious conclusion could not but force itself upon an impartial observer that the disease was, in fact, of parasitic origin. I do not desire to dilate further on this point, but will pass on to that class of observers whose conclusions appear to me to be not only more rational but correct and in consonance with clinical and pathologic observation, besides being confirmed

by the therapeutic results obtained. I refer to those whose contention it is that alopecia and alopecia areata may be due to either parasitic or to nervous influences, or to both combined. Those that persisted in one plan of treatment have been mortified by observing that failure followed their best efforts. Certain objective symptoms will serve to differentiate alopecia of neurotic and of parasitic origin.

In referring to alopecia in this paper I do not include the senile form, nor that in which the follicles of the hair have been destroyed, atrophied, or lost beyond redemption, but rather to pre-senile alopecia, defluvium capillorum, and alopecia areata. In the last-named affection we find the neurotic and parasitic types rather plainly differentiated by their respective histories and objective characteristics. In the parasitic form a history of infection may or may not be obtained. The disease may be traced to the barber's brush, infection from caps, hats, etc., worn by other individuals suffering from the same trouble, or there may be nothing definite in this respect. More or less marked itching will be present. The history of the attack will show that the falling out of the hair was gradual and peripheral. On inspection the involved area does not present a smooth surface. It is roughened to a certain degree, and the hairs at the border are lacking in luster and are easily broken upon attempts at extraction. Those portions of the scalp most often scratched are involved, and include the temporal and occipital regions, with occasionally the vertex. In many cases auto-inoculation can be clearly made out, and the entire evolution of the trouble traced upon the scalp of the individual. Scrapings from an affected area, if carefully rubbed into the skin of a dog, will produce an analogous condition, thus verifying in a satisfactory manner, the positive character of the cause of the alopecia. It must always be remembered, however, that these conditions apply to cases that have not been tampered with.

In the neurotic variety of alopecia areata, which, in my experience, occurs more frequently than the parasitic, we may or may not have a history of neuralgia, traumatism, or nervous or mental shock. The subjective sensations, if any exist, are not sufficiently well marked to attract much attention. The history is generally that the onset has been sudden, one or several areas becoming suddenly denuded of hair. These may be roundish or oval, or of irregular contour. The sizes of these areas vary considerably, and while progressive to a certain extent, there is a stationary period and an effort at spontaneous recovery. Objectively, the denuded spots have a white, almost glistening appearance, the comparison to ivory being a most apt one. A peculiarity present in this disease is that it is not limited to the scalp, but may attack, as it often does, the eyebrows, the axillæ, the breast, and the pudenda. The few symptoms enumerated are sufficiently well marked to distinguish the conditions from those of parasitic alopecia. We are, however, sometimes called upon to treat cases of alopecia areata in which both a parasitic and a neurotic cause are at work. In these the mixed effect may frequently be observed quite readily; while in the other case the problem presents such complications as to require fine discriminative powers, as well as close observation and examination.

It is hardly necessary to allude to any considerable degree to the other forms of alopecia that I have mentioned. The same general conditions and appearances exist, *mutatis mutandis*, as in alopecia areata. Concomitant phenomena are always found in connection with each individual case, of such a nature as to lead to a tolerably accurate conclusion in regard to the etiology. The cause being recognized, the rational method to pursue readily suggests itself, and the therapeutic succcess will wholly depend upon a proper selection of the remedies, and the method of their application.

I shall now consider some of the successful methods that I have employed in the treatment of some cases of alopecia and alopecia areata. I shall speak of methods, without entering into a detailed recital of cases. I only propose speaking of alopecia areata and of pre-senile alopecia, as furnishing by far the greatest number of cases of falling out of the hair that I have had occason to treat. The cases of pre-senile alopecia that I have treated, exclusive of such as were of syphilitic origin, occurred in males, and the majority of these were light blondes. In all cases, the hair was fine and silky and the scalp rather pale. In some, seborrhea existed, and the amount of secretion varied from very small quantities to quite a considerable quantity. In all, there was a history of more or less itching and of a gradual loss of hair, chiefly at the angles of the forehead and at the vertex. On combing the hair, it could be seen that this loss was considerable, although a considerable portion of what remained consisted of bed-hairs, so that the actual was by no means equal to the apparent loss. All were individuals otherwise in apparent health, whose functions in general seemed to be in perfect condition, with the possible exception of one. The nervous system lacked that stability and repose which should exist in the normal individual and which is so essential to proper assimilation. While this condition was not so apparent in all, those that did not exhibit the grosser phenomena of nervous disturbances exhibited psychic phenomena plainly indicative of nervous instability. Irritability upon slight provocation, anxiety concerning trivial affairs, depression of spirits out of proportion to the exciting cause, and similar pertur-

bations showed themselves as evidence of the neurotic condition present in the individual. A prominent feature was the hopelessness of the patient as to the ultimate result in the treatment of his case.

It will be readily seen that such cases are not very promising, yet a little moral suasion has quite an effect in improving the condition, and success is not the impossibility it might at first appear to be. The general treatment that I have adopted has been various in different cases, but has been directed to the amelioration of the condition of the nervous system. In some cases I have ordered the following twice daily in pill or in capsule:

℞.—Strychninæ sulphat. . . gr. $\frac{1}{60}$.
Ferri redacti . . . gr. j.
Quininæ bisulphat. . . gr. j.

Or, if starvation of the nerves seemed to be present, compound syrup of the hypophosphites was ordered in dram-doses four times daily, with a milligram (gr. $\frac{1}{64}$) of strychnine sulphate with each dose. In some cases, I have found it advantageous to supplement this treatment with pilocarpine hydrochlorate, taken at bedtime, gr. $\frac{1}{8}$ or gr. $\frac{1}{4}$ in powder. The effect of this internal medication was not a matter of coincidence, for, by its alternate withdrawal and resumption, most notable differences could be observed. These differences were so marked as to attract the attention of the patients and lead them to the conclusion that the internal medication was most beneficial in the improvement of the local condition. Such results occurred not only in one case but in several, and, although failure might follow the same course in some future cases, the success that has been attained is sufficiently encouraging to justify a continuance of the method until a better one can be suggested that will stand as rigid a test.

Alopecia areata occasionally presents difficulties of such a nature as to almost make us despair of any successful issue. I have been extremely fortunate in securing good results, and can only attribute them to the energetic means that have been used. Before entering into a consideration of the treatment, I desire to premise that I have always been careful to distinguish between the parasitic and the neurotic varieties of the affection. Having done this, the treatment was adapted to the condition present, and, while one method might fail, the general principle was always kept in mind in the application of the treatment.

In the parasitic form of alopecia areata I have used two parasiticidal mixtures; one, the weaker, for application to the entire scalp, to prevent new infection and a further spread of the trouble; the other, the stronger, for application directly to the implicated areas, for the purpose of destroying the parasite, and thus bringing the disease to an end. Both preparations were ordered to be applied twice daily, and, as all the cases I observed occurred in males, I had the hair clipped close to the scalp, thus facilitating thorough application of the remedy. For the weaker application I first used a 1:750 solution of mercuric chloride; afterwards a 3 per cent. solution of creolin. Both acted well, and the only advantage of the latter is the smaller danger of intoxication. This wash is to be applied to the entire hairy scalp, the affected areas being attended to after the first operation has been concluded. For the affected areas I ordered the application of sapo viridis for about five minutes, then gentle scrubbing, followed by:

℞.—Hydrarg. chloridi corros. . gr. j.
Lanolini . . . . ℥j.
M. Tere bene.
Sig.—Apply twice daily in small quantity.

In a comparatively short time a strong, healthy growth of hair could be observed. It is not always necessary to make this application twice daily. The frequency can be easily determined by the observer. Not infrequently one application a day, or every other day, will, in a short time, be all that is necessary. I have had no occasion to change the composition of this application, as in the few cases in which I employed it it proved satisfactory.

In alopecia areata of neurotic origin, which, in my experience, occurs much more frequently, I have given internal treatment in some instances and not in others. After trying various internal remedies, with more or less success, I have finally adopted the same preparations as those I have spoken of in the treatment of pre-senile alopecia. They have seemed to serve the best purpose and gave the best final results. I have observed that this internal treatment is of positive and undoubted benefit. Discontinuance of the remedy is followed by inferior results, and the effects of resumption of the treatment become very quickly apparent. In some cases, however, general treatment appears to be entirely unnecessary, but I have found these to be very few in number. They appear to be those in which a general shock had been experienced as a result of traumatism, and the nervous equilibrium was regained in a comparatively short period of time. Even in these, if no form of treatment has been employed for a considerable period of time after the injury, internal treatment is found of benefit. Yet cases of the last class must of a necessity be very infrequent. In those experimental cases in which nerves have been excised and the operation was followed by alopecia areata, the regeneration of the hair occurred spontaneously, and local as well as general treatment appeared unnecessary, but such cases would not serve as a criterion.

In the local treatment of alopecia areata the methods that I have found successful are essentially of the same character, although they differ materially in application. I do not claim any originality for either, as one is rather old and the other was suggested some little time since. Both are essentially irritant in nature, but efficient so far as my experience enables me to judge. The first is the suggestion of a French author, and consists in applying cantharidal collodion to the affected area. After vesication has been established, a dressing of some bland ointment is applied. As is well known, cantharidal collodion varies much in composition. In some instances it acts very promptly, while in others its action is quite slow. Again, its effect in the same individual may be comparatively superficial or quite deep, depending upon the proportion of cantharides present and the activity of the fly used in its composition. These circumstances necessarily act as factors in controlling the frequency of application of the remedy. In some cases I applied the cantharidal preparation twice a week, and in others it could be used but once in the same time. The reaction was more or less prompt, and, in some cases, I have had the unfortunate experience of seeing no effect of a distinct character, beyond some mild superficial irritation. However, by obtaining a good article, I have been enabled to obtain excellent results in a comparatively short time. While the effects produced were of the best, the various inconveniences attending the use of cantharidal collodion made the method anything but a pleasant one to the patient. The method is not easy of management. It causes matting of the hair; the application does not look well; it is very difficult to remove, and is inconvenient to handle. Added to this, the disagreeable necessity of continuously applying an ointment further increases the aversion of patients to the entire local curative procedure. I have often experienced much difficulty in persuading patients to continue the treatment, and it was only the good results obtained that led them to submit to it, in the hope of a speedy recovery and a proportionately short submission to the entire process. This difficulty was particularly marked in females.

When a new method was announced, obviating many of these inconveniences, and for which superiority of results was claimed, I immediatety adopted it, and desire here to express my complete satisfaction with the results attained by its use. I allude to the application of pure carbolic acid as advocated by L. Duncan Bulkley. He advocates the application of pure carbolic acid to the affected areas once every two weeks. The extent of surface to be thus treated must not exceed two square inches. He furthermore states that two, or at the most three, applications will suffice to effect a complete return of the hair. It may be Bulkley's experience to have had tractable cases, or I may have been unfortunate to have had only stubborn ones. This much, however, is certain: As soon as the method was announced it struck me as a particularly good one to use. I had a patient to whom it was applied as directed, but I had no success. This led me to modify the treatment, as follows: Instead of making an application once every fortnight I made it twice a week, and instead of limiting it to two inches I applied it to the entire surface involved—about ten square inches. Moreover, I was not at all satisfied with the ordinary 95 per cent. carbolic acid that I could obtain. It did not seem to be sufficiently strong. I secured some pure English carbolic acid, and by this means obtained more rapid and marked effects. With this product it is unnecessary to rub forcibly into the skin, and the result obtained appears to me to be much more rapid. It is true that my experience thus far has been limited to but a few cases, but they have proved so satisfactory that I shall continue until something better is offered. The method of applying the agent consists in freely swabbing the affected area with it, no matter how much of the scalp is involved. Those portions to which the acid is applied turn milky-white in a few moments, and if any are not thus affected they are touched again. This is all that is necessary. If any parts that turn white show marked inflammatory reaction, they are passed over at the next sitting. Generally, however, there is at most but a slight amount of desquamation.

Such treatment, while rather painful, is efficacious. I have also been in the habit of employing it in presenile alopecia in a modified manner. Instead of applying the carbolic acid liberally I have done so sparingly and at intervals of one and two weeks. The impulse given to the growth of hair by this procedure was quite noticeable.

That the methods that I have described are infalliable I certainly do not wish to claim, but that they are sufficiently rational to induce a trial I hope has been shown in the foregoing paper. They have been successfully employed in quite a number of cases.

CLINICAL MEMORANDA.

GONORRHEA OF THE VESICULÆ SEMINALES.

BY C. S. HOFFMAN, M.D.,
OF KEYSER, W. VA.

FROM a case that I have had under observation for the last eighteen months I have felt satisfied that there is a disease of the seminal vesicles which has not yet received the degree of attention that it should, and an article published in THE MEDICAL NEWS of May 7th, by Dr. F. B. Robinson, of Chicago, has led me to publish the following case:

In September, 1890, I was called to see Mr. L. A., fifty years old, married, and with whom I was well acquainted. He had always been very stout and hearty. He had never had any disease of his genito-urinary apparatus. I found the man suffering with a severe attack of gonorrhea, with epididymitis and orchitis of the left testicle. The gonorrhea was of about two weeks' standing; the orchitis and epididymitis of about three days' standing. The constitutional symptoms were such as would naturally accompany this combination of diseases. There was pouring from the urethra a copious muco-purulent discharge. No microscopic examination of the pus was made, but there could be no question from the history of the case, the symptoms, and discharge, that the disease was anything but a virulent case of neglected gonorrhea.

The gonorrhea yielded to treatment very slowly, from eight to ten weeks elapsing before the discharge had finally ceased. The inflammation of the testicle and epididymis subsided in from seven to ten days, although the man at times yet complains of pain in the testicle. After the acuteness of the attack had somewhat subsided, another source of annoyance developed in the form of a heavy, aching pain located deeply in the perineum. The pain was described as a sore, heavy, aching feeling, especially aggravated by standing for any length of time. It was also increased when the rectum became full of feces. The patient could hardly sleep at night until toward morning, when he would get somewhat easier. He could not sit flat down on a chair, owing to the aggravation of the pain by the pressure. The pain would be very annoying for one, two, or three weeks, and then there would sometimes be an intermission of a few days of less suffering, but never entire relief. For the first week or two after this last trouble developed, micturition *may* have been somewhat more frequent; on this my notes are deficient; but after this date the urine was not passed oftener than natural.

Supposing, from the symptoms, that inflammation of the prostate gland had developed, I employed appropriate treatment for some time without any improvement. On making a careful examination with my finger in the rectum, I found the prostate gland perfectly normal in size and not painful to pressure; but just back of it I could, on each side of the base of the bladder, clearly distinguish two bodies, longer than wide, which corresponded in location with the seminal vesicles, and which were exquisitely sensitive to touch. With a sound in the bladder and my finger in the rectum, I could positively locate them. Moving the sound in other directions in the bladder and pressing against it with my finger in the rectum would occasion no suffering, even when I would press the prostate gland between the two; but as soon as I would catch the seminal vesicles between the sound and my fingers, the patient would give indications of intense pain. Notwithstanding all that I could do in the way of treatment, the man made but very little improvement. He was, however, able to keep at work as a carpenter, though with much suffering, and he would occasionally have to stop for a day or two and lie down. In the spring of 1891, I advised him to consult a celebrated professor of surgery in one of our best medical schools for examination and treatment. He returned, saying that the professor made three examinations, and told him the disease was an inflammation of the base of the bladder, and for the cure of it prescribed salol and oleoresin of cubebs in capsules three times a day.

From this treatment the man derived no benefit, although he gave it a thorough trial. I have made repeated examinations with my finger and sound as described, and have always found the prostate gland of normal size and not painful; while reaching further back and pressing on the seminal vesicles, the pain was very acute, and especially so on the right side. I could never detect any fluctuation. To touch, the vesicles appeared swollen and harder than it appeared to me they should be in health. At present, this man is not entirely well, but for the past four or five months he has been gradually improving, and now rarely complains of his disease unless his work requires him to stand much for several days. That this disease was not a disease of the bladder is evident by the absence of trouble in micturition, which was neither frequent nor painful; nor has there been tenderness on pressing the bladder above the pubes, or with the sound in the bladder, except when counter-pressure was made over the vesiculæ seminales.

The prostate gland could not have been the seat of the trouble, else it would have been either enlarged or painful on pressure.

That the seminal vesicles were the seat of the disease is evident from the location, from the sensation and the pain elicited on pressure, and that the inflammation in them was caused by the gonorrhea seems clear from the history of the case. Dr. Robinson says it follows urethritis and generally exists with epididymitis. In this case it followed the urethritis, but did not develop until the epididymitis began to improve.

I find no mention made of any disease of the seminal vesicles in four of the five standard text-books on surgery in my library. Wyeth's *Surgery*, second edition, only mentions "that the inflammatory process may extend to the seminal ducts." In Bumstead & Taylor's work on *Venereal Diseases*, fifth edition, a short article is given to "Gonorrheal Inflammation of the Vesiculæ Seminales," in which the authors rely chiefly upon the statements of others for a description of the disease. In the course of this article it is said: "Inflammation of the vesiculæ seminales can rarely be diagnosticated with absolute certainty during life;" while I feel from the history of this case, as I have here related it, that with care it *is* possible to arrive at a correct diagnosis.

From a careful study of this case I have been impressed with the conviction, and especially since reading the article of Dr. Robinson, that gonorrhea of the vesiculæ seminales is probably of more frequent occurrence than it is recognized to be. The affection is probably often diagnosticated and treated as a disease of the prostate gland or base of the bladder.

A LABOR COMPLICATED BY CONGENITAL HYDROCEPHALUS.

BY OLIVER HOPKINSON, JR., M.D.,
VISITING PHYSICIAN TO THE LYING-IN CHARITY AND NURSE SCHOOL OF PHILADELPHIA.

BY permission of Dr. Thomas Hunter, in consultation with whom I saw the patient, I report the history of a labor complicated by intra-uterine hydrocephalus. The

case is especially interesting on account of the rarity of the complication (occurring, according to the statistics of Madame La Chapelle, fifteen times in forty-three thousand five hundred and forty-five deliveries), of the dangers to both mother and child always involved in these cases, and of the peculiar manner of the delivery of the head. I wish to add here that it was not until after the expulsion of the head that a true diagnosis was made.

We supposed from the large size and perfect form of the child's body that the difficulty was due to a correspondingly large head, with excessive ossification, increased by its position (the occiput was in the left iliac fossa; the chin dipped in the pelvis, with the face in relation with the right sacro-iliac synchondrosis).

There was nothing unusual discovered by palpation except the large size of the head. Both Dr. Hunter and myself can testify to the truth of the following statement of Playfair: "The diagnosis of intra-uterine hydrocephalus is by no means so easy as the description in obstetric works would lead us to believe."

Mrs. X., thirty years old, a quartipara, had a good family history. Her first husband, by whom she had three healthy children, died five years ago of pulmonary tuberculosis. Two years later, she married her second husband, the father of the child under consideration. Her previous confinements had been easy and natural, except the first, which was instrumental; all were vertex presentations.

Mrs. X. enjoyed good health until the beginning of this pregnancy, when she began to lose flesh and strength, with almost constant cough, nausea, and vomiting, and in the latter part with dyspnea that caused much distress—symptoms with which she had not been troubled in former pregnancies. She stated that the nausea, vomiting, and dyspnea were due to the position of the head, which she could feel "below the right breast-bone," and which "sunk in and out" whenever she coughed. About five months ago, Dr. Hunter, being consulted, detected evidences of slight trouble at the apex of the right lung.

The first sign of approaching labor was the rupture of the membranes at 10 P.M. The woman felt no pains until three hours afterward, when she had two or three rather severe ones, by which the breech was expelled. Then the pains left her. Dr. Hunter arrived at 2.30 A.M., one hour and a half after the expulsion of the breech, and found the fetus dead, the body born to the umbilicus, the back anteriorly, the head and arms in the cavity of the uterus, with the shoulders in close proximity to the vulva. With great difficulty he succeeded in bringing down both arms. After making several unsuccessful attempts to deliver by the usual methods he advised a consultation. The application of forceps was impossible from the position of the shoulders. I saw the patient at 5 A.M. Repeated attempts to move the head having failed, we decided to detruncate and apply the forceps before resorting to craniotomy. The neck was severed with a scalpel, and pieces of bone removed as far toward the base of the brain as possible, in order that the soft parts of the mother should not be injured.

The severing of the neck was followed by an escape of fluid (several ounces or more), which we mistook for the liquor amnii—an excusable error, as we did not see from where the water came, the neck being drawn up in the vagina by the great tension. I then tried to apply Tarnier's axis-traction forceps in order to rotate the head to a transverse position—it being still oblique—but failed.

Whilst the craniotomy instruments were being procured the patient had about an hour's rest, with good effect; for during that time there were several good pains—the first since the birth of the breech—which caused a favorable change in the uterus. Preparations were now completed for craniotomy. Dr. R. O. Kevin administered the ether. I found the uterus smaller and harder, the chin and mouth lower in the pelvis, but the occiput was still resting upon the ilium, with the neck high up behind the symphysis, the suboccipito-frontal diameter in correspondence with the right oblique pelvis. This change induced us to make one further effort with the forceps, which was easily adjusted to the sides of the head, and, by traction combined with compression (such a degree of force and compression being used as were considered justifiable and safe), the head was brought down, till the chin (still posterior) touched the pelvic floor.

Meeting with resistance, the instruments were removed, it being decided to leave the termination of the case to Nature, or, if that failed, to resort to craniotomy, which would now be comparatively a safer and easier operation, for both the pelvis and vagina were capacious. Happily, the pains increased in force and frequency, and with constant supra-pubic pressure the chin began to rotate anteriorly, sweep over the perineum, and glide under the symphysis—the mouth and nose at the vulva.

There being now a delay, notwithstanding several good pains, grasping the chin with the placenta forceps, I made traction directly upward during the following pain, when the forehead, occiput, and neck were born successively. The neck underwent a complete revolution. Probably ten minutes elapsed between the removal of the forceps and the birth of the head, which occurred at 7.30 A.M., six and a half hours after the birth of the breech.

The cause of the engagement of the face seems to be that, after the severing of the neck and the escape of serum, which the pains, with supra-pubic pressure, hastened, the suboccipito-frontal, biparietal, and bitemporal diameters, the ones chiefly concerned, were lessened by the collapse of both parietal bones.

Dr. Hunter informs me that the convalescence was unattended by any abnormal pelvic symptoms, but that the pulmonary complication has rapidly and decidedly advanced.

The etiology of intra-uterine hydrocephalus is obscure. I can find no cause in this case, unless it be the tuberculous condition of the mother.

MEDICAL PROGRESS.

Twelve-pound Fibroma of a Labium Majus.—At a meeting of the Medical Society of the State of Washington, McKONE reported the case of a woman, thirty-nine years old, in the fifth month of pregnancy, who presented a large tumor of the left labium majus that had been

present from the ninth year of age. The mass had slowly increased in size; but only within a year had it occasioned any pain. It was as large as a man's head, and was attached by a short pedicle. The posterior aspect of the tumor was discolored and suppurating; two glands in the adjacent groin were enlarged and tender; there were pain and vomiting; the temperature had risen; and the pulse was accelerated. It was decided to remove the growth, and the woman acquiesced in the proposition. A rubber ligature was placed around the base of the tumor and another around the pedicle as close to the body as possible, and a careful dissection made of the intervening pedicle. The tumor was then severed from its connections. The patient made an uninterrupted recovery, and at term was delivered of an eleven-and-a-half-pound baby. On microscopic examination the tumor proved to be a fibroma.

Psoriasis.—DUBOIS-HAFENITH (*La Policlinique*, 1892, No. 6, p. 81) thus summarizes his views upon the subject of psoriasis: Psoriasis is a distinct affection, a morbid entity. The designations lingual psoriasis and syphilitic psoriasis are inappropriate and tend to lead to confusion. The etiology and pathogenesis of psoriasis are still obscure—that is, there is yet no causal treatment. Psoriasis is incurable, in the sense that there is no method capable of preventing recurrence. Arsenic is not a specific for psoriasis; neither is potassium iodide. The greatest reliance is to be placed upon the local treatment; general indications are, however, not to be ignored. The best remedy is chrysophanic acid; next in value come pyrogallic acid, oil of cade, naphthol, and white precipitate. In a general way the choice of the remedy and of the method will depend upon the social position of the patient, and the seat and extent of the disease. The individual tolerance of the skin is also to be considered. A certain number of cases of psoriasis resist all methods of treatment.

Oil of Anise as an Imbedding Medium for Making Frozen Sections.—To overcome some of the difficulties attendant upon the ordinary use of the freezing microtome, KUHNE (*Centralbl. f. Bakteriol. u. Parasitenk.*, 1892, xii, 1, p. 28) recommends the employment of oil of anise as an imbedding medium. Thin sections of hardened tissue, freed of their alcohol, are placed in a sealed flask containing oil of anise and permitted to remain for from twelve to twenty-four hours. They will then freeze readily, and delicate sections can be made. These are taken from the knife and placed in a dish containing oil of anise. Thence they are transferred to absolute alcohol, and are ready to be stained.

Peritonitis Due to Gonococci.—WERTHHEIM (*Centralbl. f. Gynäkol.*, No. 20) has reported the case of a woman, twenty-four years old, who for three years had a vaginal discharge, with pain in the hypogastrium. A right-sided salpingitis and a recent perimetritis were found. Ordinary treatment not availing, celiotomy was resorted to and the diseased appendages removed. In the pus contained in Douglas's cul-de-sac large numbers of intracellular gonococci were found. The right tube was evidently the source of the inflammation.—*Wiener medizin. Presse*, 1892, No. 25, p. 1018.

THERAPEUTIC NOTES.

Galvanism in Gynecology.—As the outcome of an experience of four years, RUTHERFORD (*Practitioner*, July, 1892, p. 32) has arrived at the conclusion that in the treatment of diseases of the female pelvic organs, the utility of the employment of galvanism, except in cases of fibroids, has been overrated, and that the results are not sufficiently satisfactory to command confidence. In uterine fibromata, this method of treatment is satisfactory in a few carefully selected cases only; as when hemorrhage is the chief or only symptom and in rapidly growing interstitial fibroids. The galvanic current merely acts as a caustic, destroying or diminishing the vascular areas that surround and constitute the source of nutriment for the fibroids. The primary polar action that abstracts acids and bases at the anode and kathode is too slight to be of any real benefit. The interpolar action is still an hypothesis.

Traumatic Tetanus Cured by the Antitoxine Isolated by Tizzoni and Cattani.—TARUFFI (*Riforma Medica*, No. 90) has reported the case of a peasant, seventy-four years old, who, ten days after receiving a lacerated and crushed wound of the right little finger while loading wood, presented manifestations of tetanus. For two days the symptoms increased. Then 0.25 of antitoxine that had been obtained by Professor Tizzoni from the blood-serum of an immunified dog was injected subcutaneously, and again twice on the following day and the next succeeding day, and once a day later—six injections in all being given.

The patient began to improve after the first injection, and on the eleventh day was entirely well. Virulent tetanus bacilli were found in the amputated finger.—*Wiener medizin. Presse*, No. 23, p. 937.

Treatment of Chorea.—JUMON maintains that the treatment of chorea should be governed by certain well-defined indications. In ordinary chorea, antipyrin and arsenic yield the best results. In chorea of rheumatic origin or associated with rheumatic manifestations, antipyrin is still indicated; with it sodium salicylate may be conjoined; sulphur baths may prove useful. If an hysterical element exist, the bromides may be employed. In chorea of cardiac origin, depressing remedies are to be avoided; potassium or calcium iodide is indicated. In most cases of chorea, gymnastic exercises and reconstructives may be advantageously employed.—*Journal de Médecine de Paris*, 1892, No. 28, p. 335.

Agathin, a New Antineuralgic.—ROSENBAUM (*Deutsche medizin. Zeitung*, No. 50) has successfully employed agathin in the treatment of neuralgia and rheumatism. Agathin is a body chemically related to salicyl and methylphenylhydrazon, and appears in tasteless and odorless leaves, insoluble in water, soluble in alcohol and ether.—*Wiener medizin. Presse*, No. 27, 1892, p. 1100.

Creasote for Whooping-cough. — Creasote, in doses of from half a minim upwards, three or four times a day, recommended in the treatment of whooping-cough. The cough diminishes, vomiting is infrequent, and the duration of the attack is abbreviated.—*Lyon Médical*, No. 29.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, Including Postage in North America.

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PHILADELPHIA.

SATURDAY, AUGUST 6, 1892.

TIMELY OPERATION FOR APPENDICITIS.

THE question as to the proper time for surgical intervention in cases of inflammation of the cecum, the appendix and the surrounding tissues is one of the most important in practical medicine. Within the last five years much has been written upon the subject. It has been often discussed and still remains unsettled. In America, however, the general tendency of opinion is, we think, more and more in favor of early resort to operative treatment, and less and less to tolerate procrastinating expectancy.

Among those to whom the greatest credit is due for what amounts to a revolution in professional opinion are THOMAS G. MORTON, of Philadelphia, and CHARLES MCBURNEY, of New York. Other surgeons are also worthy of distinguished mention; but recent papers by the two operators named have reawakened a sense of our obligations to them.

MCBURNEY [1] lays great stress upon the importance of what, following Jacobi, he terms "timely" rather than "early" operation. He says: "I am surprised to see in the printed report of the *Proceedings of the Philadelphia County Medical Society*, at a meeting held in September last, that so representative a man as DR. PEPPER said that 'If every case of appendicitis were operated upon, the mortality would be tenfold what it now is.' The mortality is at present over twenty per cent. in cases treated by the expectant plan, so it is very evident that DR. PEPPER'S view of the possibilities of surgery is a very black one. But it is hardly worth while to follow his line of argument, for it seems to be based on the assumption that surgeons wish to operate upon every case of appendicitis. I have never read nor heard that any surgeon has expressed such a wish. My own experience, and that of many others, has been that operation for acute appendicitis, done at the right time and before the disease had progressed too far, is nearly invariably successful. Out of some fifty such cases I have seen only one die. . . . . As regards the diagnosis of the conditions which should lead to operation, I must differ entirely with DR. PEPPER and others who think highly of the method of examining the appendix through the rectum. In the early stages of appendicitis this method has no value whatever. Of course, those who are accustomed to allow abscesses to reach a large size will in time find a bulging tumor low down in the pelvis. We had better devote our attention to learning the signs of suppurative appendicitis before the abscess has threatened the rectum."

To MORTON must be given the credit for having first deliberately sought out and removed an ulcerated appendix,[1] and for having, by his paper before the Philadelphia County Medical Society,[2] first clearly established the principles of surgical treatment of pericecal inflammation. Thus Philadelphia may claim the greater share of the credit for what may justly be called one of the most important and most radical advances of modern surgery. "MORTON'S operation," as it deserves to be called, is a different thing from the procedures formerly in vogue, when the abdomen was simply opened by a "Willard Parker" incision, to drain an evident abscess.

MORTON [3] divides cases of inflammation of the appendix into three groups. The first group is that of cases of simple irritation or inflammation of the appendix, a condition difficult of recognition during

[1] Cases of Appendicitis, Illustrating Different Forms of the Disease." Medical Record, April 16, 1892, p. 421.

[1] Case of Dr. Frank Woodbury reported in the Proceedings of the Philadelphia County Med. Soc., vol. viii, 1888, p. 101.

[2] Proceedings of the Philadelphia County Medical Society, vol. viii, 1888, p. 267.

[3] "On Appendicitis and Peri-cecal Inflammation, with Notes of Cases Illustrating Unusual Difficulties in Diagnosis." Journal of the American Medical Association, July 25, 1891.

a first attack, but which is likely to recur, when the diagnosis becomes strongly probable.

The second group is that of cases of inflammation with ulceration or perforation, in which a protective capsule is formed, so that, unless the walls surrounding the abscess-cavity should yield, peritonitis does not take place.

The third group is that of cases in which ulceration and perforation take place before sufficient lymph-protection has been established. Such cases are early associated with symptoms of unusual depression, and often of profound collapse.

Any case of mild appendicitis belonging to the first group of cases may pass to the second group, and in no case of the third group that MORTON has seen did careful inquiry fail to reveal the fact of a previous attack of appendicitis.

Rarely has a discussion before a medical society been productive of more good than that historical discussion before the Philadelphia County Medical Society on December 14, 1887, for from that discussion may justly be dated the modern advance in the treatment of appendicitis. As was stated, at a later date, by T. S. K. MORTON,[1] "Differential diagnosis of inflammatory affections in the region of the cecum, which is usually impossible prior to surgical interference, is neither necessary nor important, as operative procedure up to the point of establishing a diagnosis is identical for all affections of the cecal region; and the ratio of appendicular to cecal inflammatory affections is probably 100 : 1."

The surgeon last quoted is undoubtedly correct in his unqualified condemnation of needle exploration. "The procedure is inherently dangerous and will furnish no indication that cannot otherwise be obtained." This was demonstrated not long ago at an operation in which the relations of the parts and the situation of the abscess were such that not alone would the exploring needle have failed to reveal the presence of pus, but it would have perforated the gut.

Equally correct is the dictum that operation should be undertaken "not later than the third day of the disease, if the patient up to that time has failed to markedly improve" under skilful medical treatment. "Further than this, we should invariably operate as soon as the presence of pus is assured; when peritonitis is developing or spreading; when signs of sudden rupture of an abscess into the peritoneal cavity appear; and when septicemia from septic absorption is taking place. In children operation must often be performed earlier than in adults, as with them the malady is more speedy in development, more fatal in tendency, and shows a greater proclivity to involve the general peritoneum."

There can be no doubt that an overwhelming majority of cases of appendicitis recover without surgical treatment; according to MCBURNEY, nearly eighty per cent. Nevertheless, it is of the utmost importance that in the treatment of the remaining twenty per cent. a proper time for operation should not be allowed to go by, and thus patients be liable to perish, notwithstanding the untimely surgical intervention.

It is a question requiring the exercise of much judgment, and one in which no man is justified in taking alone the responsibility for delay. KEEN[1] strongly urges physicians to promptly call their surgical colleagues in consultation. PEPPER[2] with equal emphasis insists that the possibilities of medicine must not be forgotten by the surgeon. Both are right. Physician and surgeon both should see the case at the earliest possible moment. The surgeon should call the physician to his aid in order that no therapeutic or diagnostic method, possibly unknown to him, should be omitted in the examination of the case, or in treatment, with the hope of averting operation; and the physician should summon the surgeon in order that the latter should have full knowledge of all the circumstances of the case before taking the knife in hand.

Every case of appendicitis, no matter how mild it may apparently be, involves the possibility of the patient's death. Every operation involves the possibility of unknown and serious complications and of a fatal issue, and no professional pride of opinion, no unworthy motive whatsoever, should prevent that early consultation which alone will insure against both the alternative dangers: on the one hand, that of undue haste in operation; and on the other hand, that of undue procrastination and temporizing after operation has become necessary.

[1] "The Operative Treatment of Appendicitis." Proceedings of the Philadelphia County Medical Society, vol. xii, 1892, p. 262.

THE SIXTIETH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

IN another part of THE NEWS we present abstracts of the several addresses delivered in the

[1] Proc. Phila. Co. Med Soc., vol. xii, p. 288. [2] Ibid, p. 287.

various sections of the Sixtieth Annual Meeting of the British Medical Association, held at Nottingham, July 26, 27, 28, 29. Some of the papers are noteworthy, and afford an index of the progress that is being made in the various departments of medicine. The relations between the two continents are so close that little transpires in one that does not early receive critical scrutiny in the other.

The Address in Medicine by DR. CUMING is a learned discourse, dealing in a masterly way with numerous important questions.

In the Address in Bacteriology DR. WOODHEAD ably expounds some of the most recent problems in the new science, together with the practical fruits of their solution.

The comparative observations of DR. RANSOM upon plants, in their application to the process of inflammation, are both ingenious and interesting.

The address of MR. CROFT in the Section of Surgery is a reflex of the work of his section, and deals briefly with some topics of absorbing interest.

DR. BEVAN LEWIS in the Section of Psychology makes a practical and thoughtful contribution, indicating a number of innovations that have been introduced in the West Riding Asylum at Wakefield.

In the Section of Pathology MR. VICTOR HORSLEY made a few terse, pointed introductory remarks, defining the almost ignored distinction between pathology and morbid anatomy.

In the Section of Diseases of Children, DR. MARSHALL made a strong plea for special instruction in this department of medicine.

In the Section of Pharmacology and Therapeutics DR. BROOKHOUSE reports seven cases of pulmonary tuberculosis, in which intra-tracheal injections of menthol were practised with satisfactory therapeutic results.

Without being over-sanguine, the future in both preventive and curative medicine is exceedingly assuring.

THE GROSS MONUMENT FUND.

A SUBSCRIPTION was at one time made for the foundation of a Chair of Pathological Anatomy, in memory of S. D. GROSS. We believe that something like $7000 was subscribed, but that the amount not being sufficient for the purpose, the project fell through. Would it not be well to consolidate this fund with the Gross Monument Fund of the American Surgical Association? This would insure a suitable memorial to PROFESSOR GROSS.

SOCIETY PROCEEDINGS.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Twenty-eighth Annual Meeting, held at New London, Conn., July 20 and 21, 1892.

FIRST DAY—JULY 20TH.

THE Society was called to order by the Vice-President, DR. GEORGE C. HARLAN, of Philadelphia.

The first paper was one by DR. CHARLES A. OLIVER, of Philadelphia, entitled "History of a Case of Gunpowder Injuries to both Corneæ, Irides and Lenses, with Subsequent Restoration of Vision to almost Full Acuity."

A man, eighteen years old, received the powder-contents of a blank cartridge squarely in the face at a distance of three feet. There were several penetrating wounds of the corneæ, and powder was deposited in both irides and lenses. When seen several hours later, the loose particles of gunpowder were removed from the corneæ, conjunctivæ and sclerotics. The left cornea presented a peripheral wound, with a corresponding tear in the iris, through which a powder-grain could be seen adhering to the lens. Another wound extended almost through the cornea. The fundus was apparently normal. The right eye presented a penetrating wound of the cornea, with injury to the iris. The lens was swollen and rapidily becoming opaque. Four days later, secondary glaucoma developed. Eserine and cold compresses were then employed, and on the following day an iridectomy was performed. The wound healed promptly; atropine was resorted to on account of slight tenderness in the ciliary region. The left eye improved continuously. When the patient was discharged, two months after the accident, there was good perception of light in both eyes. In the left eye there was considerable unabsorbed lens-matter. The tension of the right eye was normal; most of the lens-matter seemed to have been absorbed. The lower half of the pupil was covered by a thin opaque sheet of capsular débris. Two weeks later, a broad round hole was made in the lower half of the capsule, securing, with proper correction, vision of $\frac{5}{7}$. After free double discission of the left lens, vision was restored to $\frac{5}{10}$. A year later, the eyes were perfectly quiet, and the patient pursued his ordinary occupation.

DR. SAMUEL THEOBALD, of Baltimore, read a paper entitled "Removal of a Fragment of Steel from the Vitreous Chamber by Means of the Electro-Magnet, with Preservation of Nearly Normal Vision." A small piece of steel had passed through the cornea and iris near the periphery, but had fortunately missed the lens. On the eleventh day, an attempt was made to extract the foreign body, which had excited a high degree of inflammation. The clouding of the vitreous humor prevented its location with the ophthalmoscope. A longitudinal incision, about 4 mm. long, was made through the sclerotic and deeper coats, between the inferior and external recti muscles and back of the ciliary body, through which the magnet-point, sterilized by boiling water, was introduced into the vitreous chamber. After several unsuccessful attempts, the bit of steel was withdrawn, adhering to the magnet-point. There was considerable hemorrhage, but no loss of vitreous. Subsequently a lotion of opium and

boric acid was applied and atropine instilled. Recovery was rapid and uninterrupted. Three months later, the eye was almost normal in appearance. The pupil was not quite circular. The vitreous was clear. Vision was 20/XXV +.

DR. F. BULLER, of Montreal, Canada, read a paper on "Foreign Body in the Retina." Six days after being struck in the left eye with a piece of metal, the patient, a man twenty years old, presented a penetrating wound of the cornea, with perforation of the iris and zonula, without opacity of the lens. A short distance below the papilla a piece of metal lay in the retina. Rest and instillation of a two-grain solution of atropine were ordered. A zone of opacity around the foreign body gradually increased in size. Twenty-six days after the injury, although the eye felt well and vision was 6/XII, there were pronounced evidences of neuro-retinitis. The piece of metal was still quite distinct. For a considerable distance around the foreign body there was marked atrophy of the choroidal pigment. Fourteen months later, the eye was still giving no trouble. Vision was $\frac{6}{27}$ +. There was diffused hyalitis, with fine opacities in the vitreous; the optic nerve was red and swollen; the foreign body, however, could no longer be seen. Its former seat was marked by a small patch of pigment.

DR. CHARLES STEDMAN BULL, of New York, reported a "Case of Traumatic Irido-Choroiditis from Contusion of the Eyeball, ending in the Development of Intra-ocular Glioma." The patient, a girl three years old, had been struck on the left eye by the bowl of a large spoon. There was no rupture of the eyeball. The child at once complained that she could not see. Ten days later, the eye was sightless; there was a central infiltration of the cornea, with loss of epithelium. The iris was dilated, discolored and immovable. The vitreous was hazy, and there was a yellowish reflex from the nasal portion of the fundus, due to an exudation. There was no pain or sensitiveness on pressure. One week later, numerous hemorrhages took place into the retina and vitreous, and the tension was increased. All external signs of irritation had subsided. Three months later, a detachment of the retina occurred, involving nearly two-thirds of the fundus. The yellowish reflex still remained and vessels were seen running over it. The tension still remained plus. Six weeks later, the sclera in the ciliary regions became thinned. Enucleation was urged, but refused. Four months later, the child was much worse. She was anemic and emaciated. There was a large ciliary and equatorial staphyloma; the anterior chamber was obliterated. The lens was opaque and crowded against the cornea, and the tension was much increased. The parents now, nearly a year after the injury, consented to an enucleation. The child at first improved much, but two months later she complained of headache and nausea, and the pre-auricular and submaxillary glands were found enlarged. Three weeks later, a growth was discovered in the orbit, and the upper cervical glands became enlarged. The symptoms grew steadily worse, and three months after the enucleation the right eye became involved, a small yellowish deposit being found in the inferior temporal quadrant. The left orbit became filled with the growth; the glands on the left side became enormously enlarged; the child became gradually stupid, then comatose, and died sixteen months after the blow on the left eye.

No autopsy could be obtained. A microscopic examination of the left eye showed gliomatous masses developed in a matrix of exudative tissue.

DR. G. E. DE SCHWEINITZ, of Philadelphia, read a paper on "Hyaline Bodies (Drusen) in the Nerve Head." He reported the case of a man forty-five years old, who had received an injury of the head some twenty years previously. The optic nerves were atrophic. The globular masses were arranged circularly slightly within the apparent margin of the head of the nerve. They were surmounted by shining particles that glistened like cholesterin crystals. After death, compound hyaline bodies or "drusen" were found in the head of the nerve, within the tissue of the papilla, anterior to the lamina cribrosa. The optic nerves were atrophic. The coats of the arterioles in the optic nerve below the lamina, and of the central artery in the neighborhood of the "drusen," were thickened. The optic nerve and the brain presented no abnormality.

DR. CHARLES A. OLIVER, of Philadelphia, reported Two Cases of Symmetrically-placed Opacities of the Cornea, occurring in mother and son. In both cases the condition had existed for a long time, and no cause could be ascertained.

DR. S. O. RICHEY, of Washington, read a paper entitled "The Prime Etiological Factor of Glaucoma is Constitutional." He traced a correspondence between an attack of podagra and one of acute inflammatory glaucoma. Many manifestations of rheumatic gout are associated with chronic glaucoma, viz.: enlarged or distorted joints, a peculiar, senile pallor, or muddiness of the skin, periods of mental depression, and other symptoms attributable only to changes in the nervous system. It was contended that chronic glaucoma is associated with neurotic manifestations that are to be ascribed to the absorption of toxic substances from the intestinal tract.

In the treatment of chronic glaucoma, the quantity and quality of food are to be carefully regulated in accordance with the physical needs; prompt excretion of improper intestinal products is to be favored; and uric acid solvents and strychnine and galvanism are to be employed.

DR. EDWARD JACKSON, Philadelphia, read a paper on "The Full Correction of Myopia." Of twenty-nine cases of myopia in which full correction was prescribed, in but three was there any notable increase in the degree of myopia, and these were hard students. The contra-indications are presbyopia and an exceptional inability to use strongly concave lenses for near work; lowered acuteness of vision, so that the perfect retinal images are not appreciated; habituation to large blurred images, which made sharper images unpleasant, as in old myopes; and divergent squint established to secure more perfect monocular vision.

DR. GEORGE C. HARLAN, Philadelphia, read a paper entitled "Constant Correction of High Myopia." He reported twelve cases in which full and constant correction of myopia of all degrees, varying from four to sixteen diopters, had been worn for periods of from five to seventeen years. The patients were from twelve to twenty-five years old. In some, the fundus was normal; in

some, there were moderate myopic crescents; and in others there were extensive choroidal changes. There was, however, not the slightest loss in the acuteness of vision in any case. In eight, the myopia was stationary; in three, there was a slight increase in myopia from 0.50 to 1.50 D.; in one only was there a considerable increase, 2.50 D., after constant correction for nine years. Excessive convergence without accommodation is the most important factor in progressive myopia. The restoration, so far as practicable, of the normal relation of these two functions is the most valuable therapeutic measure.

The degree of comfortable accommodation that exists, or can be acquired by practice with gradually increasing lenses, should be the chief guide in selecting the glasses to be used. The convergence will usually adapt itself when the accommodation is given its normal range; or if it does not, it may be made to conform by prisms or tenotomy. Complete correction of the optical defect, with full restoration of the normal relation between accommodation and convergence, is the ideal condition, and can usually be attained in young subjects with fair acuteness of vision and full accommodative power.

When full correction is impracticable it is better to sacrifice something in distant vision by the employment constantly of the strongest glasses with which comfortable reading is possible than to use two pairs of glasses.

DR. SWAN M. BURNETT, of Washington, read a paper on the "General Form of the Human Cornea, and its Relation to Refraction of the Eye and Visual Acuteness." Measurements made with Javal's ophthalmometer demonstrate that the cornea gradually diminishes in curvature from the visual axis toward the periphery. This diminution is much greater to the nasal side. The difference in the vertical meridian is less than that to the nasal side, but on the average is greater than that to the temporal side. The practical inference is that the place of election in an iridectomy is the temporal side of the cornea. Dr. Burnett reaffirmed his belief that the ophthalmometer is one of the best means for making out astigmatism, but it cannot be relied upon to the exclusion of other methods, for it gives no indication of the degree of lenticular astigmatism, the existence of which the instrument itself has been mainly instrumental in demonstrating.

DR. SWAN M. BURNETT, of Washington, further read a paper entitled "Some Incidental Phenomena of the Shadow Test." He maintained that the shadow test is an approximately reliable means of testing refraction. In a number of cases in which the findings of skiascopy and those of test-glasses did not coincide a play of shadows was observed within the illuminated area that moves across the pupillary space, similar to what is observed in conical cornea.

The phenomenon is ascribed to some interference with the regular refraction of the light in its outward passage from the fundus, and must be found in the corneal substance (not sufficient to produce a discoverable opacity), or in the surface or substance of the lens. In all cases in which the internal shadows were at all pronounced the visual acuteness was below the normal. In some instances, the shadow-tests give reverse movements with minus glasses, when plus glasses were required to improve vision, the examination being made under a mydriatic.

DR. HERMAN KNAPP, of New York, read a paper entitled "The Law of Symmetry of Our Eyes, as Manifested in the Direction of their Meridians: its Rules and its Exceptions." He considered the symmetry of one eye as a whole as compared with its fellow with regard to the median line of the body. In 1000 successive cases of astigmatism it was found that the meridian of strongest refraction (shortest radius of curvature) was symmetrically placed in 84 per cent.

The dominating direction is the vertical (60 per cent.); next comes the horizontal (11 per cent.); then the diagonal with 4.3 per cent.

Dr. Knapp proposed a classification of the varieties of astigmatism based on the direction of the strongest meridian, viz., vertical, horizontal, and intermediate or oblique astigmatism. A deflection of 45° may be called diagonal. The oblique variety has to be subdivided into nasal oblique (or simply nasal), and temporal oblique (or simply temporal).

DR. GEORGE C. HARLAN, of Philadelphia, read a paper, giving "Statistics of Direction of the Principal Meridians of the Eye," the results obtained being similar to those presented by Dr. Knapp.

DR. CHARLES A. OLIVER, of Philadelphia, read a paper on "The Clinical Value of Repeated Careful Correction of Manifest Refractive Error in Plastic Iritis," as a result of a study of forty cases.

In nearly every case of iritis, especially if plastic, there is a period, even after full pupillary dilatation has been seemingly artificially obtained, during which, owing to the persistence of inflammatory changes in the uveal tract, graduated instillations of mydriatics should be employed; the duration and gravity of this period is most accurately measured and determined by the systematic and repeated estimation of the varying manifest errors of refraction.

Whilst, during this stage, there are at times curious changes of corneal curvature, the bulk of the ametropic change is due to the perversion of the lens's action from what is termed "spastic accommodation," as the result of ciliary irritation and inflammation.

In nearly every case of iritis the duration of this stage can be promptly shortened by the judicious and ready use of some quick and powerful intra-ocular muscular paralyzant.

In some few such cases, however, during the acme of the attacks, especially if the case be pronounced in type and stubborn in character, the higher grades of refractive error seem to obstinately persist with but little variation, and to defy local and general measures.

In some cases of incipient iritis in which clonic spasm of the ciliary muscle is present, or pupillary contraction persists, local muscle paralysis is often quickly obtainable by a prompt and more energetic employment of powerful and appropriate local and general remedies.

DR. OREN D. POMEROY, of New York, read a paper entitled "Some Tenotomies of Recti Muscles for Insufficiency," reporting four cures in which the operation had been performed. Most of the cases of insufficiency had been relieved by correcting the ametropia.

In dividing the tendon, in some instances, an aperture

has been made in the center and a small hook passed in, dividing successively each half. This is a difficult procedure, and is not necessary. Ordinarily the conjunctiva is dissected as little as possible, and the tendon is divided at its insertion; the patient is then tested by prisms, and if the result is not satisfactory more dissecting is done. It is difficult to determine by inspection whether or not all of the tendon has been divided. A little over-effect is usually desired, and if considerable over-effect is obtained a suture will correct it.

DR. H. F. HANSELL, of Philadelphia, read a paper on "Prominent Symptoms of Hyperphoria," based on a study of thirteen cases. In two cases, the symptoms were purely local. Photophobia of moderate degree was present in five cases. Pain in the eyeball, constant, or induced by reading, was prominent in all cases.

Six cases suffered with vertigo. In two cases, marked dyspepsia was present. In four cases, the most prominent symptoms were nervousness, irritability of temper, and at times mental confusion.

SECOND DAY—JULY 21ST.

DR. CHARLES STEDMAN BULL, of New York, presented "A Contribution to the Subject of Intra-cranial Lesions, with Defects in the Visual Fields; Five Cases, with Autopsies." The first case was that of a woman, fifty years old, who had received a severe mental shock, followed by convulsious and profound nervous prostration. Then followed severe neuralgia, recurring every three weeks and lasting for more than a year. The first ocular symptom was night-blindness in one eye, with progressive amblyopia. A year later, the other eye became affected in the same way. Headache then came on, boring in character and located at the vertex, but subsequently becoming continuous and confined to the occipital region. In the left eye there was a large irregular central scotoma for form and color, and in the right eye a smaller scotoma. The fundus of the right eye was but little affected, but the left eye presented a declining neuro-retinitis and beginning atrophy of the optic nerve. The patient lived four years, with steadily failing vision. During the last year, she had repeated attacks of unilateral convulsions, became wildly delirious, and died in a violent general convulsion. The autopsy showed extensive pachymeningitis of the convexity of the left anterior lobe, some patches over the right anterior lobe and one large patch over the right parietal lobe. All the arteries at the base of the brain were thickened and their lumen narrowed.

The second case was in a young man aged twenty-four years, who had suffered from headache for more than a year, at first slight and transient, but increasing in severity and intensity. Six months later, muscular twitchings appeared in the upper extremities and face, with attacks of vertigo. The vision of both eyes became affected. In a paroxysm of general convulsions, the patient fell a distance of thirty feet, striking on his back, but without apparent evil result. There was concentric narrowing of the field of both eyes, which steadily increased; vision slowly failed. The optic discs, which were at first hyperemic, became pale and atrophied. About six months after the first convulsion, the man had two violent convulsions in rapid succession, which proved to be the last. He became irritable, grew stupid, and gradually sank into profound coma, in which he died. The autopsy revealed a large tumor involving the optic chiasm, both optic nerves and the hypophysis, which on examination proved to be a small-cell sarcoma.

The third case was in a man thirty-seven years old, who had suffered from severe headache in the left parietal and occipital regions for about nine months. Two months later, loss of vision in the right half of each field was detected. Six weeks before coming under observation, the sense of smell was suddenly lost. Examination showed vision in each eye to be 20/L and disclosed a bilateral right hemianopsia, with concentric limitation of the remaining fields. The man had had a chancre twelve years before. The intra-cranial lesion was believed to be a gumma and was located in the cuneus. In spite of treatment, there was a steady failure of vision, and muscular twitchings in the face and hands appeared. The man gradually became stupid, then comatose, and finally died, fourteen months after the first appearance of the headache. At the autopsy, an olive-shaped tumor was found in the cuneus on the left side, close to the median line. The growth proved to be a small-cell sarcoma.

The fourth case was in a woman seventy-two years old, who had suffered with headache for more than a year. Six months before coming under observation, she awoke with severe pain in the head and total blindness in the left eye. There were confusion of ideas, numbness of the right arm and leg, and thickness of speech. There was slight ptosis of both upper lids; speech was thick and slow; the tongue deviated to the right side; vision was 20/XL; there were slight lenticular opacities and bilateral left hemianopsia. The ophthalmoscopic examination was negative. It was thought probable that there had been a thrombosis followed by rupture of the middle cerebral artery on the left side. The woman lived for twenty months, vision failing, but the fields remaining unchanged. One morning she was found unconscious, and died three days later. The autopsy showed a patch of softening in the left anterior lobe; in a branch of the middle cerebral artery running through it was an old plug completely obliterating the lumen of the vessel. There was a recent rupture of a branch of the left middle cerebral artery and a large clot of blood in the middle lobe of the brain close to the Sylvian fissure. All of the arteries of the brain were diseased. At the base of the brain on the right side, overlying and pressing upon the right optic tract, was a tumor as large as a hazel-nut, situated just in front of the corpus geniculatum laterale. This proved to be a small-cell sarcoma.

The fifth case was in a man thirty-five years old, who for three years had suffered from severe headache, beginning in the frontal region, but gradually extending all over the head; at first intermittent, but later constant. There were occasional attacks of nausea and vertigo. Four years previously he had received a violent blow in the left parietal region, followed by bleeding from the left ear and rapidly increasing deafness. For nine months there had been diplopia, and for six weeks partial left heminesthesia. There was paresis of both external recti muscles. Vision in the right eye was 20/C; in the left eye 20/L. There was marked papillitis, with numerous hemorrhages. There were homonymous di-

plopia for all distances; irregular central scotoma for all colors; marked vertigo, with a tendency to rotate to the right side. A diagnosis of cerebellar tumor was made. Toward the close of life the man became nearly blind; he died in profound coma. The autopsy revealed a globular tumor in the right lobe of the cerebellum close to the peduncle. The growth proved to be a glio-sarcoma.

DR. CHARLES W. KOLLOCK, of Charleston, S. C., read a paper on "Monocular Amblyopia in the Same Family," reporting four cases of amblyopia in members of the same family—two brothers and two sisters. In all the left side was affected.

DR. KOLLOCK also read a paper on "The Eye of the Negro." Many of the eye affections observed in negroes were traceable to syphilis and to the changed conditions in their life since the war. Ulcerative keratitis is quite common among the negroes, but trachoma is exceedingly rare. Cataract is equally frequent in the negro and white. Glaucoma is of equal frequency. Retinitis, optic neuritis, and choroiditis are not infrequent. Retinitis pigmentosa had not been observed in the negro. No case of embolism of the cerebral artery had been observed. Xerosis of the conjunctiva had been seen in one case in an adult. Orbital tumors seem uncommon in negroes. Two cases of abscess of the orbit had been seen in negro children.

Myopia was not common in pure-blooded negroes before the war, and is still rare. Three cases of myopia had been observed in the pure black. Comparatively few pure bloods have been examined for refractive error.

DR. W. F. MITTENDORF, of New York, read a paper on "The Frequency of Posterior Capsular Opacities at the Place of Attachment of the Hyaloid Artery." He called attention to the frequency of small round lenticular opacities, believed to be the remains of the fetal hyaline artery, or to mark the attachment of the artery to the posterior lens capsule. Of 1884 persons, these opacities were observed in 44 cases, a little more than 2 per cent.; they were observed more frequently in the right eye than in the left, and oftener in the male than in the female; not infrequently they were seen in both eyes. They vary in size from a dot as small as the point of a pin to one as large as a poppy-seed; frequently a magnifying power of a lens of five or six diopters is necessary to see them.

DR. OREN D. POMEROY, of New York, presented a paper on "Some Cataract Extractions with and without Iridectomy," which was read by title.

DR. CARL KOLLER, of New York, exhibited "Preparations of the Nerves of the Cornea." The peripheral nerves were stained by Ehrlich's method by the injection of a saturated solution of methylene blue into the vessels of a recently-killed animal. The nerves of the cornea are colored in a beautiful manner, but the stain is only temporary, and does not permit of the making of preparations.

DR. T. Y. SUTPHEN, of Newark, N. J., read a paper on "Scleral Puncture in Detachment of the Retina." He reported two cases of detachment of the retina in which the sclera was punctured. In the first, useful vision was restored; in the second, the improvement was but slight.

DR. E. E. HOLT, of Portland, Me., reported "A Case of Orbital Cellulitis," in which the inflammation spread to the temporal region, thence to the neck, interfering with deglutition, and to the brain, producing death. Four other simliar cases were referred to.

DR. CHARLES J. KIPP, of Newark, reported "A Case of Recurrent Bilateral Inflammation of the Capsule of Tenon, in Connection with Mercurial Poisoning." The first attack followed an injury, but was succeeded by repeated attacks. The patient was employed in an incandescent electric lamp manufactory and had become poisoned by the mercury used in his work. The recurrences continued until he gave up this work. There has been no attack since a year and a half.

DR. R. A. REEVE, of Toronto, Canada, read a paper on "Pulsating Exophthalmos." He reported a case in which pulsating exophthalmos followed a trauma. It was thought that there was a lesion of the internal carotid, allowing the blood to enter the cavernous sinus. Pressure upon the carotid failed to control the pulsation. A year ago, the right common carotid was tied. Pulsation and bruit ceased for a few hours and then returned. Some months later, finding that compression of the left common carotid controlled the pulsation and bruit, this vessel was tied, but the pulsation still persists. There is pulsation in the right carotid above the seat of ligation. Pressure upon the right external carotid stops the pulsation and bruit absolutely.

DR. CARL KOLLER, of New York, read a paper entitled "Sub-conjunctival Application of Cocaine." He stated that by injecting a few drops of a 1 per cent. solution of cocaine beneath the conjunctiva, after the application of a 4 per cent. solution to the surface, tenotomy, cataract operations, and iridectomies can be performed without the slightest pain.

DR. KOLLER also read a paper on "The Form of Retinal Images in Astigmatic Eyes."

DR. CHARLES J. KIPP, of Newark, N. J., reported "A Case of Gumma of the Ciliary Body," and exhibited the specimen.

DR. F. BULLER, of Montreal, Canada, exhibited "An Improved Trial Frame."

DR. J. A. ANDREWS, of New York, showed an "Apparatus for Washing Out Cortical Matter." He also exhibited drawings of "Four Cases of Gumma of the Iris."

DR. LUCIEN HOWE, of Buffalo, demonstrated "A Pocket Ophthalmoscope."

DR. R. A. REEVE, of Toronta, described "A Modification of the Rotary Prism Test."

DR. JOHN GREEN, of St. Louis, reported "A Case of Hyaline Bodies in the Nerve Head."

The following officers were elected:

President.—Dr. Hasket Derby, of Boston.

Vice-President.—Dr. George C. Harlan, of Philadelphia.

Corresponding Secretary.—Dr. J. S. Prout, of Brooklyn.

Recording Secretary.—Dr. Samuel B. St. John, of Hartford.

Delegate to the Executive Committee of the Congress of American Physicians and Surgeons.—Dr. John Green, of St. Louis.

Alternate.—Dr. D. B. St. John Roosa.

The following were elected to membership:

Dr. J. A. White, of Richmond, Va.; Dr. Walter B. Johnson, of Paterson, N. J.; Dr. G. W. Hale, of Nash-

ville, Tenn.; and Dr. R. L. Randolph, of Baltimore, Maryland.

The next meeting will be held at New London, Conn., on the third Wednesday of July, 1893.

BRITISH MEDICAL ASSOCIATION.

Sixtieth Annual Meeting, held at Nottingham, July 26, 27, 28, 29, 1892.

FIRST DAY—JULY 26TH.

MR. JOSEPH WHITE, of Nottingham, delivered the President's Address, reviewing the development of the work of the British Medical Association and of British Medicine and Surgery since the last Nottingham meeting. He extended a hearty welcome to the participants in the meeting, and made reference to the geologic and sanitary conditions of Nottingham.

The British Medical Association last met at Nottingham in 1857. The meeting was a small one, as compared with the magnitude of the present congress. Some eighty or ninety members were present.

Credit was given to Sir Charles Hastings, the founder of the Association, for his assiduous zeal and labor, and his enlightened and enthusiastic efforts.

The original objects and aspirations of the Association were the collection of important medical and surgical knowledge arising from public and private practice in the great provincial centers and in rural districts; increase of knowledge of the medical topography of England, in its widest sense, and which could best be collected by those resident on the spot; investigations of the modifications of endemic and epidemic diseases in different situations and at various periods, so as to trace their connection with peculiarities of soil and climate, or with the localities, habits, and occupations of the people; and, perhaps, most important of all, the maintenance of the honor and dignity of the profession generally by promoting friendly intercourse and free communication amongst its members, and by establishing between them that harmony and good feeling which ought ever to characterize a liberal profession.

When the Association last met at Nottingham the number of members (and this represented a quarter of a century of successful work) was 2065; now it is more than 14,000. Then all the meetings were held in one small room, on the low pavement known as the Assembly Room; now the whole of the magnificent suite of rooms which the authorities of the town and the Council of the University College have most kindly and liberally placed at the disposal of the Association is required, and even these are not large enough for general meetings. Then the branches were confined within the limits of the southern half of Great Britain; now they extend to most of the British possessions throughout the world. In North and South America, in India and China, in Burmah, in the West Indies, and in the islands of the Mediterranean, at the Cape, and in Australia, there are numerous and increasing branches, and year by year an ever-increasing number of professional brethren are feeling the power and adding to the influence of the Association. But not only has the Association increased numerically and in the extension of its area, but it has increased in a still greater ratio in the character and importance of its work.

The address continued with an interesting historical and critical summary of the more important work that been done in the various departments of medicine in the last forty years.

SECTION OF MEDICINE.

The PRESIDENT, DR. W. H. RANSOM, of Nottingham, delivered an address on "Some Diseases of Plants Compared with Those of Man." The paper was based on a long though desultory study of diseases of plants, seen from the point of view of the student of medicine.

Inflammation in plants was defined as the reaction of living cells to irritation. All such reactions in plants produce what are, or may be, called galls, using the word widely, but some of them which occur in growing points are known as witch-knots. It may be convenient to add that a gall should be considered as a local hyperplasia, or overgrowth of tissue, which differs from a local hypertrophy in that it diverges in structure and form from the normal tissue or organ with which it is related, and injures, or at least does not benefit, the plant. The causes of such reactions, or in other words the irritants, may sometimes be mechanical or physical agents, or inorganic chemical substances, but as a matter of fact all those which have been most successfully investigated inhere in living organisms. These organisms are very diverse, so that nearly every order of insects presents us with some examples. Among the acari the Phytopi, or gall mites, are the best known; some anguillulæ have long been known to produce galls, and some parasitic fungi, as well as certain as yet imperfectly classified organisms, also cause galls.

Numerous examples were given to show some of the grounds upon which is founded the hypothesis that the irritant is an organic chemical substance, and also to support the view that the process of irritation is some gentle, persisting disturbance of the metabolism of the living cells, during which cell-multiplication is inhibited where it first acts, but stimulated just outside that part. Such disturbance is propagated in some unknown way through the gall-tissue, so as to act differently at different distances in different directions, and may extend to tissues outside the true gall, and varies at different stages of the evolution of the gall.

The process of reaction, which is necessarily conceived of simultaneously with that of irritation, has its source in that fundamental faculty of repair and reproduction which plants, in common with all organisms, necessarily possess. The power of reaction to irritation resides in all the living cells, although most marked in the younger, as is also true of the processes of repair and of reproduction. The process itself may be conceived of as a compensative cell-proliferation directed and modified in its character by the irritant, so that the result is at once heterologous and specific.

When a part of a living plant is injured, it dies if the damage be serious, and the nearest living cells multiply, so that in wounds of parenchyma one and the same kind of tissue, known as cork, always results, whatever may have caused the injury, and in wounds which involve the great cambium, repair is effected by another tissue, known as callus, which is always the same whatever may have produced the injury. Repair, then, is not specific in relation to the cause of the injury, but in similar tissues is always the same. Both cork, which is the scar-

tissue of plants for injuries of parenchyma, and callus, which is the same for wounds of axes, are normal and permanent plant-tissues, and the latter has within itself all the potentialities of the whole plant, being able to reproduce roots and shoots. The whole process of repair is a physiologic one, that of reaction to irritation a pathologic one, and it is only when the two processes are mixed that confusion can arise.

As all the reactions to true irritation are by the hypothesis inflammations in plants, this expression includes both those well-defined galls of complex structure and somewhat independent life which are usually called tumors of plants, and those more variable and indefinite local hyperplasiæ due to irritation, which are often so slight as to escape attention, and would more naturally be spoken of as inflammation. In all, however, the irritant directs the reaction and the product is specific. Malformations, such as witch-knots, etc., probably belong to the same category; they differ from galls mainly in that the reaction which produces them results from the irritation of a developing germ, and that it produces rather an abnormal arrangement of otherwise normal organs than a true local hyperplasia.

As morbid processes in plants belong to the domain of general pathology, they may properly be considered in relation with the corresponding processes in animals.

The following general theory of inflammation was proposed:

In virtue of those necessary and inherent faculties by which all organisms repair damage, living cells react in response to true irritations by a proliferation with modification directed by the irritant, and not beneficial to the organisms in which the process occurs.

According to this view, all inflammations are specific, From the purely clinical standpoint many inflammations would still be spoken of as simple or common, but with the progress of etiologic knowledge the number of specific inflammations would increase at the expense of those which from lack of etiologic knowledge only are called common.[1]

The arguments used in reference to inflammation admit of application to fever, although the equivalent of that process is not yet recognized in plants; but remembering how many fevers are now known to be specific, their intimate connection with inflammations, and the specific effects of poisons and drugs both upon the organism as a whole, and upon the several organs and tissues, such an extension of the doctrine, which is indeed apparently a necessary corollary from the truism that causes are factors which must always effect the results in some degree, would have some basis of support.

The greater complexity of structure and function in the higher animals than in plants, and especially the more immediate dependence in the former of every tissue and organ upon the integrity of the nervous and circulatory system, sufficiently account for those differences in the inflammatory process which are known to exist.

SECTION OF SURGERY.

The President, MR. JOHN CROFT, of London, opened the session with an address in which he briefly adverted to the three topics selected for discussion. He made the following propositions relative to the surgical treatment of pleural effusions, serous or puriform: 1. Early evacuation is the best principle to act upon. 2. The exclusion of air when practicable and the observance of aseptic or antiseptic *technique* should be rigidly observed. 3. Complete and perfect drainage of the cavity under treatment is essential, including counter-openings and large openings into the pleura or other pus-holding cavities. 4. Large cavities require adequately large openings. 5. Ribs and periosteum, intercostal vessels and nerves may be largely excised with advantage immediate and prospective, so long as ordinary precautions are observed. 6. Lack of early and adequate operations is an important, though not the exclusive cause of delay in the closing of cavities. 7. Lung-abscesses and gangrene and bronchiectatic cavities, with certain obvious exceptions, are amenable to surgical exploration and treatment. 8. Hydatid cysts in the lung or pleura may be successfully extracted or otherways cured by thoracotomy.

When an enormous pleural cavity is bounded on one side by a collapsed, movable, swinging, dangling lung, and on the other side by rigid bony wall, the difficulty is a formidable one, particularly when there is little or no disposition to the formation of granulation or cicatricial tissue. Sponge-grafting has failed. Abstraction from the wall of the chest of a great portion of its bony rigidity does not necessarily succeed.

In this connection the question arises, Would the removal of the useless swinging lung, at or near its root, be a safe and useful measure? Its presence is an obstacle to the cessation of discharge from the pleura, and its removal would be a step half-way to cure, if adequate measures for its fixation have failed of their purpose.

Tuberculous cavities associated with other tuberculous deposits and multiple bronchiectatic cavities have as yet proved insurmountable diseases and difficulties.

Since the introduction of antiseptics and aseptic modes of operating, a decided improvement has taken place in dealing with the pericardium and its troubles. It does not present the same conditions for difficulties and such exceptional states as the lungs and pleuræ.

Brilliant as are the results obtained in the surgery of the liver and gall-bladder, there remain difficulties yet to be overcome and questions yet to be settled. Among these are: 1. The treatment of hydatid cysts of the liver which have already opened or which threaten to open into the chest. 2. The question of early operation in cases of cholelithiasis. 3. The desirability of suturing the incision into the gall-bladder and of then closing the abdominal incision and cavity. 4. When the gall-stone is impacted in the duct and cannot be reached through the gall-bladder, should the duct be incised and the incision sutured, the omentum being employed to strengthen the fastening? 5. The question of whether ligature of the cystic duct without cholecystectomy is to be preferred to other operations. 6. The cases in which cholecystectomy is to be preferred to less radical procedures. Lastly, the interesting topic of cholecystenterostomy will arise—when it is to be resorted to and the best mode of carrying out the operation.

The subject of the surgical treatment of tuberculous disease is still one of the burning questions of the day.

[1] By this theory in animals, as well as in plants, all tumors due to a reaction to irritation would be included in the term inflammation, as probably also would be some of the malformations.

In spinal diseases we have a study of tuberculous disease of bones and joints. The essential pathology of disease is the same whether the neoplasm is in bones or joints of limited mobility—as in the spine—or in the bones or joints of the utmost mobility in the extremities.

In discussing the treatment of tuberculous abscesses connected with disease of the bones and joints of the spine, the vexing questions as to shortening of the limbs, arrest of growth from excision of epiphyses, flail-like joints after operation, acute infective tuberculosis after excisions, do not, or should not, embarrass the discussion. No one, as far as known, has yet attempted cure by excising the vertebral column with the joints.

There are at least two most remarkable lines of practice that widely differ from the old modes of treatment: The cure of tuberculous spinal abscesses, without septic sinuses, by repeated aspirations and iodoform-injections, no larger operations than those being performed; and the cure of the same condition of large abscesses by free incision, evacuation of all cheesy deposits and sequestra, obliteration of the lining tuberculous membrane without the permanent introduction of an antiseptic, and these proceedings followed by complete closure of the wound without draining.

SECTION OF PSYCHOLOGY.

The President, DR. W. BEVAN LEWIS, L.R.C.P. Lond., of Wakefield, delivered an address "On Some Desirable Extensions of Asylum Administration." He dwelt upon the importance and the necessity of having a competent pathologist in the service of every insane asylum. To facilitate the training of men in institutions that have no regular pathologist, leave of absence for a varying period should be granted to house-officers for the purpose of special tuition. By the establishment of out-patient departments in connection with insane asylum cases may be secured in the earliest stages of mental disease. Courses of lectures on nursing and ambulance service constitute a most commendable feature. Out-door private nursing may be provided by choosing a certain number of skilled nurses as a private nursing staff, temporarily resigning their positions on the staff, their wages and incidental expenses being paid out of a fund accruing from their earnings. The vacancies on the staff thus created are filled by probationers, who offer their services unpaid for instruction in nursing and who succeed to the vacancies occurring from time to time from resignation and other causes.

SECTION OF PATHOLOGY.

The PRESIDENT, MR. VICTOR HORSLEY, of London, made some introductory remarks. He stated that pathology, as such, is almost unknown. What is commonly spoken of as "pathology," taught as "pathology," and made the subject of examinations in "pathology," is not pathology, but morbid anatomy.

The pathologist should be the student of disordered function as well as of disarranged structure; morbid anatomy is, therefore, but one side of his work; pathology is the other. What is required at the present day is the accurate determination of the aberrations of normal function, and, judging by the strides normal physiology as a science has made, no difficulty attends the pathologist in this new and fertile field. A mass of facts has been accumulated in elucidation of the various changes in the structure of the lungs produced by pneumonia, phthisis, etc.; but how many workers have been found to investigate the degree and effect of the loss of the respiratory function, of the disorder of the normal oxygen and carbonic acid ratios? Yet this is it that kills; this is the whole work of the disease, and this is what must be solved before the treatment of such diseases can be worthy of mention other than as mere empirical palliation. This, the pathology of the diseases of the respiratory organs, is a subject before which the facts of morbid anatomy will seem more and more restricted as the intricacy and breadth of the problems it is often supposed to solve are properly considered and appreciated.

Another example—a much smaller one, but involving most fundamental considerations—is the condition spoken of as edema or dropsy. What is more common at the present day than to hear this condition gravely ascribed to alterations in the blood-pressure alone, and chiefly to venous stagnation? Yet this view has for more than twenty years been absolutely contradicted by experimental pathologists, and shown to be untenable. This surprising indifference to pathology is due to want of familiarity with modern progress in physiologic and chemical research. Fortunately, laboratories are springing up now on all sides, original investigations are being pushed forward, light and knowledge widely diffused. The reproach that we have been dead-house students rather than true pathologists will, therefore, soon be wiped away.

SECTION OF DISEASES OF CHILDREN.

The President, DR. LEWIS W. MARSHALL, of Nottingham, delivered an address on "The Need for Systematic Instruction in Diseases of Children." He deplored the lack of practical instruction in the recognition and management of the diseases of children. To this deficiency are to be ascribed many of the false traditions that remain, and not a few of the ills from which children suffer.

SECTION OF PHARMACOLOGY AND THERAPEUTICS.

The President, DR. J. O. BROOKHOUSE, of Nottingham, delivered an address on "Some Points in Pharmacology and Modern Therapeutics." Medicine, in its largest and broadest significance, is at once an art and a science, and is based upon observation, experiment, and practice. As a science it must necessarily be inexact, for it deals with the highest organism—that of man—under conditions the most uncertain, unstable, and complex. Hence the apparent fallacies in experiment, the errors in observation, and the slow and uncerfain advance in practice. In purely and simply experimental research and laboratory work, at least some of the ordinary sources of fallacy may be controlled or eliminated, and thus more definite and correct conclusions be arrived at. To few, however, are such opportunities afforded, and with the rank and file of the profession rests not merely the recognition of disease and its treatment, but to no inconsiderable extent the advance of medicine in its practical issues.

If, however, it cannot be claimed that experimentally very large additions have in recent years been made to our powers of cure, in two directions at least there have

been originated methods of procedure which have already added somewhat to these powers, and which are of great promise for the future. Most of our present remedies are the outcome of experiments made on natural products, animal, vegetable, or mineral, or on compounds which the chemist has put at our disposal in his efforts to penetrate those secrets of nature with which he is specially concerned.

Chemistry has taught us that the various organic groups may be combined in an almost infinite variety of ways, and that it is possible thus to produce thousands of new bodies, each of which will have a special action on the tissues and organs according to the groups of which they are composed, and the method by which the groups are united. Of late the chemist and the pharmacologist, working together, have built up for medicinal use a large number of these new compounds, joining together organic groups for definite purposes.

At least a score of new substances have been introduced during the past twelve months for the purpose of fulfilling some definite therapeutic want, and though doubtless many, probably the majority, will not be of practical service, still there is evidence that some may prove to be very useful medicinal agents, and there is great hope that with increasing knowledge new compounds will be formed which will be of incalculable value in the treatment of disease.

The second therapeutic departure to be noted is for the most part one of promise only. It comprises the use of the products of the lower forms of life which are connected with disease, or, again, of the use even of microbes themselves as therapeutic agents.

The question whether the experiments made on the lower animals will enable us eventually to deal effectively with infectious diseases in man is one of great interest and importance.

It is quite possible that some methods of treatment, founded on the knowledge which has been gained by the influence of microörganisms and toxines, may not prove capable of practical application; if, however, this be the case, certain facts as to this influence are proved, and we have good grounds for hoping that further experiments made on the use of microörganisms and their products will before long put in our hands new therapeutic agencies for the cure of infectious diseases in man.

Any reference to modern therapeutics would be incomplete without a passing glance at modern diseases. One cannot be unobservant of the vast proportionate increase during the past twenty years of diseases of the nervous system. The business and social conditions of daily life are vastly altered. We live at high pressure. Competition, rapidity of travel, ambition, the struggle for wealth, place, and power, with all the anxieties, cares, and worries involved therein, the exactions of social life, what is spoken of as "hurry," and a thousand and one other such things, have undoubtedly been productive of serious functional nerve-disturbances previously unknown, whilst others involving coarse lesions have been rendered more common. Further, long-continued functional disturbance alone may, and not infrequently does, bring about organic change, such change being the outcome of perverted and impaired nutrition.

In these conditions of physical strain and mental tension we have a state provocative of nerve-changes both coarse and subtle, but all degenerative in type. With these, therapeutics has not, and cannot, keep pace. The requirement of the sufferer is for speedy, nay immediate, relief; but the call is in vain. We now, no more than formerly, have the power to build up new and healthier tissue. The human machine refuses to acknowledge any law other than the law of nature, and there is no therapeutics outside the universality of her harmonies.

Seven cases of pulmonary tuberculosis, at various stages, were reported satisfactorily treated by intra-tracheal injections of menthol.

The method consists in the introduction once or twice daily into the trachea of one dram of a 12 per cent. solution of pure menthol in pure olive oil; this is effected by the aid of the laryngoscope, and a syringe specially made with a curved tube; the tube is passed through the rima glottidis, about half an inch down the trachea. After a little practice and habituation, the patient feels no inconvenience or discomfort whatever; on the contrary, there arises an agreeable sense of warmth in the chest. An early result is a marked diminution of the cough and expectoration; the night-sweats, if previously existant, cease; the hectic temperatures become less marked, the curves become normal, and the patients gain in weight.

Despite therapeutic and pharmacologic advances; despite new remedies and new methods of cure, the tendency, in increasing measure, of modern thought and practice is toward the recognition and employment of preventive as distinguished from curative medicine. A larger and better understanding and observance of the laws of health, a more perfect knowledge of the causes and spread of disease, the attainment of a higher educational and intellectual standard, have in part contributed to this. May not also the thought of the inadequacy of curative medicine in grappling with disease constrain us to endeavor rather to anticipate those conditions which appear to underlie and give rise to morbid change? And in matters of personal health this question dominates the entire position. It is unquestionably easier, for instance, to employ measures to maintain the standard of health, even in those, for example, phthisically disposed, than it is to arrest the disease when once in activity.

SECOND DAY—JULY 27TH.

ADDRESS IN MEDICINE.

DR. JAMES CUMING, of Belfast, delivered the Address in Medicine. He considered the position of medical science in the general world of thought and its relations to certain other branches of knowledge with which it is allied.

In view of the extent to which certain of the natural and experimental sciences, namely, chemistry, botany, and physics, have grown, the question arises as to restricting the limits within which these should be taught the medical student. Would not the principles of chemical science suffice amply for his practical wants, which after all are comparatively simple? When the practitioner of medicine has tested for albumin and sugar, and is familiar with the composition and reaction of a few urinary deposits, and knows that a condition of acidity may be temporarily relieved by an alkali, he has pretty completely gained all the information of practical

value which chemistry is likely to give him for the needs of his daily work. The tests for the principal poisons and alkaloids may, perhaps, be added.

As regards botany, does the botanic source of our remedies in any way elucidate or guide us in their application, or would the majority of us recognize the plant in its growing or dried form from which we derive our most valued agents?

As for natural philosophy, everyone will admit that any considerable, not to say profound, knowledge of subjects which have received so much attention at the hands of physicists, and which have been worked out with such minuteness and care, and of which the full comprehension entails so much mathematical acquirement, are altogether beyond what may be fairly required from a student of medicine.

It may be urged that the study of the ancillary sciences, as they have sometimes been called, is of high importance to the discipline of the intellect, and tends to develop the habit and the power of careful and accurate observation; and this may be admitted in the fullest and most ungrudging manner. But the powers of the average human intellect are far from illimitable, the capacity of attention is bounded, and the sum of mental energy requires to be carefully husbanded, to be directed in the right channels and not to be allowed or compelled to dissipate in useless effort.

Our anatomy must be thorough, though not unnecessarily minute and elaborate. It should be learned so that the body will be, as it were, transparent to the eye. Then we can afford to dispense with no considerable portion of the wide and fruitful field of physiology, a science which is now so extended and so rapidly increasing that many men of science are specializing themselves on different portions of its vast territory.

Among the subjects of greatest present interest there are two that seem to give evidence of distinct currents of thought moving apparently in opposite directions. On the one hand, we find an important part in pathologic and physiologic processes ascribed to minute organisms, the white corpuscles or leukocytes, which are apparently free from all direct nervous influence and float freely in the blood; and, on the other hand, we find that the domain of the most highly organized and differentiated part of the body, the nervous system, is being extended and increased.

A new cellular pathology is being developed, differing widely indeed from the brilliant theory bearing this name, so long familiar to us from the powerful advocacy of Virchow; but agreeing with it in the important functions assigned to the ultimate elements of the body as independent factors, both in morbid and in healthy processes; and also in representing them as being either uninfluenced or as only indirectly influenced by the nervous and vascular systems in some of their essential activities.

The study of medical psychology alone is a very incomplete and inadequate preparation for comprehending the multiform disturbances of mental function, and is even more inadequate in respect of either diagnosis or therapeutics, and in regard to the expectation of adding to our knowledge of cerebral diseases, as regards either localization or character.

Some knowledge of psychology proper, that is of the science of the phenomena of mind in its normal conditions, is absolutely necessary. Without an acquaintance with the problems and methods of psychologic inquiry it is impossible to observe and to describe adequately the phenomena of morbid mental states. In the investigation, also, of those conditions in which the disturbance of a single function is what is most manifest and striking, it is clear that a knowledge of the limits and differentiation of function must be of capital importance. It will be of value also to become familiar with the terms used in psychology, in itself a study of no inconsiderable difficulty and extent. In dealing with such questions as amnesia, aphasia, delusions and hallucinations, and other disturbances of consciousness we are not only in the sphere of our legitimate activity and of our daily work, but we are touching, not indirectly, on some of the most interesting problems of mind.

We need not attempt the great metaphysical questions of substance, reality, the nature of consciousness, the ontologic nature of space and time, the essence of causal action, and the like. The domain of the clinical and pathologic observer is an humbler but a more fruitful one. Just as biology concerns itself with the manifestations of life and puts aside all theories regarding its nature and origin, just as in fact all sciences have to resolutely set aside at the beginning a certain number of unsolved questions, so we may fairly relegate these problems to other and more competent authority.

Nor is much to be gained at present by attempting to form any wide generalizations. A working hypothesis is, no doubt, of the highest utility in an experimental science, even if it ultimately comes to need to be corrected or to be altogether abandoned; and if the facts that come before us were capable of being called into existence, or of being modified at pleasure, such an hypothesis might be necessary for our guidance. But we have to deal only with phenomena not susceptible of voluntary modification, and what we have to do is simply to observe them with accuracy and to record them with fidelity. In these observations the materialist who regards mind as a form of motion in the brain-cells, and the spiritualist who looks on it as an immaterial principle underlying the phenomena of consciousness, although acting through the nervous system, can work together in perfect harmony, as the problem is to observe and analyze the phenomena brought before them. Even in this task there are limits set to our observations that it is not easy to surmount or evade.

One of the definite lines on which medical observation might be of the greatest value in elucidating some unsettled problems is furnished by the aberrations and decay of memory. For this species of observation no apparatus is necessary, and the opportunities are daily offering themselves, and most abundantly, to the busiest practitioner.

Nor even in a therapeutic sense will studies of this kind fail to bear fruit in enabling us to deal more rationally and more successfully with the morbid conditions of this important portion of the economy. It can hardly be denied that there is a tendency among the most enlightened members of the profession to attach a less overwhelming importance to the administration of medicinal agents, and to have recourse to the employment of them instead of what may be called physiologic

remedies for the treatment of the morbid conditions of the mind and brain. Light, air, nutriment, environment, the warding off of hurtful, the presentation of soothing impressions, these are more frequently and more successfully employed than the large class of nervines, of the remedial actions of which we are not so certain as we could wish. And when we add to these the so-called moral treatment, comprising amusement, occupation, and the like, we have enumerated most of the agents on which we most confidently rely.

The numerous and potent additions that have been made of late to our stock of nervine remedies should not be underrated. They are to be considered as constituting a great arsenal of warlike weapons of the newest construction and the most perfect adaptation to their purpose, kept always ready for use and in a thoroughly efficient state of order and readiness. But as it is the highest and most successful statesmanship not to be obliged to employ these powerful weapons in actual warfare, so we best vindicate the efficiency of our art by having recourse to our armaments only as sparingly as may be; confident, however, that at critical moments and in periods of active disturbance they can be employed with great and admirable effect.

It will always also be of great aid to the physician to be able in dealing with those committed to his care to recognize the influence on them of ideas of hope, of confidence, of endurance; to be able to deduct from their complaints what is the result of an impressionable nervous system and what of pure imagination; to solve, as nearly as may be, the personal equation. These capabilities will supplement beneficially the most refined and accurate physical diagnosis. We need not doubt that the multiform aspects of disease, following, as they do, closely on the track of all the numerous and diversified forms of human energies and activities, will afford ample scope for the freest exercise of the highest scientific faculty, as well as for the employment of the most minute and patient observation. The tendency of the medicine of the future will no doubt be in the direction of greater specialization. Physicians and surgeons will devote themselves, more and more, to the cultivation of a limited portion of the vast and always widening field of knowledge. Medicine must adapt itself to the varying necessities and requirements of the world. It must prove itself capable of supplying the wants of civilization, rapidly becoming more complex in its development, and therefore more varied as well as more exacting in its demands. It must press into its service all knowledge, physical and mental, likely to aid in the furtherance of its mission; accepting the help of its sister sciences, but allowing itself to be dominated by none of them. It must be alike flexible in its methods and steady in its aim; and it must be at once cautious and inspiring, always sane in practice, while bold in speculation. But at the same time it behooves all those concerned in its guidance, or responsible for the instruction of those who are to become its members, to bear in mind its position as one of the main supports of the tripod of learning, as one of the great factors in the intellectual progress of humanity; being well assured that it cannot sacrifice any portion of its intellectual elevation and dignity without a corresponding sacrifice of its truest and most practical usefulness.

THIRD DAY—JULY 28TH.

ADDRESS IN SURGERY.

DR. WM. H. HINGSTON, of Montreal, delivered the Address in Surgery. He stated that the average surgeon of to-day is less a man of thought than a man of action. He is constantly liable to disturbance, either from the particular character of his calling, or from the agitation of all around him, of which he soon partakes. He is made to eschew the more meditative habits that would the better fit him to weigh well and to adopt or reject what should be adopted or rejected, without reference to authority or without being swayed by the influence, not always safe and reliable, of superiority of position or of condition.

Perhaps, at no time in the history of the medical art have the facilities been greater everywhere than they are at present of arriving at conclusions that may not be intelligent, and of being misled by representations that may not be strictly true. With steam and electricity, and the wondrous and unceasing development therefrom of vast physical agencies, men are brought nearer to each other. Truth travels with the speed of lightning, but error also, and with like rapidity. Opinion, formed in a large center, acts especially on the imagination of those around, and more powerfully still, perhaps, of those at a distance. It does not always convince, but it impresses, and it has the force of authority rather than of reason; and concurrence in it is not always an intelligent decision, but a submission or belief.

English surgeons were little disposed to believe that a sponge probang, charged with solution of nitrate of silver, could be got beyond that watchful sentinel, the epiglottis, and be applied to the larynx. Who doubts it now? The same may be said of Sayre's assertion, discredited at the time, that after excision of the bones of the hip-joint the joint could be so arranged that the little patient could be borne from one place to another and without injury.

The American surgeon arrives, in his own way, and with marvellous celerity, at the chief points in a case—at its gist, its essence, so to speak—by a process which may not be strictly called logical, but which partakes rather of an intuitive intellectual judgment or perception. He seems to recognize truth, or something he takes to be truth, without any elaborate process of ratiocination. This marked quality in the American mind renders him prone to eclecticism, not alone in medicine and surgery, but in philosophy, and even in matters of theology sometimes.

The relatively greater freedom from death in Canada after surgical operations is to be ascribed to climatic influences. The inflammations which sometimes follow surgical procedures are accentuated, and are marked by much elevation of temperature; but the character of those inflammatory processes is of a simpler, plainer, more sthenic type, and not of that irritable form which so often perplexes hospital surgeons in the larger centers of Europe.

Canadians are subject to few ailments, and these are of asthenic inflammatory type. Thorough acclimatization is found to confer additional immunities. Those who can count the greater number of generations born in Canada are the healthier, while those undergoing the process of acclimatization do not suffer in the processive

state. These remarks do not apply to the descendants of the aborigines who have been allied to the whites.

There are no surgical diseases in Canada which have not their counterpart in every portion of Europe, except frostbites and the *mal de raquette*. Aneurisms are not common in Canada; chronic rheumatic arthritis is seldom met with; rickets is scarce; strumous ophthalmias are not frequent; and in carcinoma, especially of the breast, the glandular system is not generally primarily affected, affording thereby a fairer chance of freedom from early recurrence of this disease.

On the eastern coast of New Brunswick, in Canada, a few lepers are met with in the lazaretto there; but the disease is not indigenous to the soil.

As acclimatization effects certain changes, it affords also certain immunities from which those not similarly circumstanced cannot expect to benefit. The acclimatized bear injuries well. Living in a simple primitive state, they require occasional aid from the surgeon, and less from the physician. Colonists in thinly settled districts sometimes send long distances for surgical aid in cases of hernia or dislocations.

Domestic surgery in civilized countries might in some things learn a little from the primitive methods of the aborigines. For instance, the treatment of the newborn by the latter is judicious. The yielding abdominal walls are never compressed by an unyielding bandage, and the young bird in its nest is not more comfortable. As the varied movements of respiration are not impeded, the infant cries but seldom. It never suffers from the local troubles that the children of the whites often do. The urine is carried beyond the infant's person, if a male, by an ingenious mechanical support which directs the stream. Feculent matter is received into dry moss, which is to be found in large quantities in every wigwam where there is an infant.

If in the depths of the forest an Indian breaks his leg or arm, splints of softest material are at once improvised. Straight branches are cut, of uniform length and thickness. These are lined with down-like moss, or scrapings or shavings of wood, or with fine twigs interlarded with leaves, if in summer; or with the curled-up leaves of the evergreen cedar or hemlock, if in winter; and the whole is surrounded with withes of willow or osier, or young birch. Sometimes it is the soft but sufficiently unyielding bark of the poplar or the bass-wood. Sometimes, when near the marshy margin of our lakes or rivers, the wounded limb is afforded support with wild hay or reeds of uniform length and thickness.

To carry a patient to his wigwam or to an encampment, a stretcher is quickly made of four young saplings, interwoven at their upper ends, and on this elastic, springy couch the injured man is borne away by his companions. When there are but two persons, and an accident of this nature happens to one of them, two young trees of birch or beech, or hickory, are used. Their tops are allowed to remain, to aid in diminishing the jolting caused by the inequalities of the ground. No London carriagemaker ever constructed a spring which could better accomplish the purpose. A couple of cross-bars preserve the saplings in position, and the bark of the elm or birch, cut into broad bands, and joined to either side, forms an even bed. In this way an injured man is brought by his companion to a settlement, and often it has been found, on arrival, that the fractured bones are firmly united, and the limb is whole again. This is effected in less time than with the whites, for the reparative powers of these children of the forest are remarkable. In their plenitude of health, osseous matter is poured out in large quantity, and firm union is soon effected.

The healing powers of the aborigines, when injured, are equalled by the wonderful stoicism with which they bear injuries and afflict upon themselves severest torture. They are accustomed to cut into abscesses with pointed flint; they light up a fire at a distance from the affected part (counter-irritation); they amputate limbs, and sometimes they amputate their own limbs with their hunting knives, checking the hemorrhage with heating stones, as surgeons were accustomed to do in Europe in the time of Ambrose Paré, with more *sang froid* than many young surgeons will display when operating on others. The stumps of limbs amputated in this primitive manner are well formed, for neatness is the characteristic of all the Indians' handiwork.

The aborigines are familiar with, and practise extensively, the use of warm fomentations. In every tribe their old women are credited with the possession of a knowledge of local bathing with hot water, and of medicated decoctions. The herbs used are known to a privileged few, and enhance the consideration in which their possessors are held.

The Turkish bath, though in a simpler but not less effective form, is well known to them. If one of their tribe suffers from fever, or from the effects of long exposure to cold, a steam bath is readily improvised. The tent of deer skin is tightly closed, the patient is placed in one corner, heated stones are put near him, and on these water is poured till the confined air is saturated with vapor. Any degree of heat and any degree of moisture can be obtained in this way. Europeans often avail themselves of this powerful sudatory when suffering from rheumatism.

The aborigines have their herbs—a few, not many. They have their emetics and laxatives, and astringents and emollients, all of which are proffered to the suffering without fee or reward.

The "Indian teas," "Indian balsams," and other Indian "cure-alls"—the virtues of which it sometimes takes columns of the daily journals to chronicle—are not theirs. To the white man is left this species of deception. The necromancing *medicine man* doubtless practises deception, but he is, in turn, impressed by the energy of his own incantations; and failure on his part to cure exposes him to personal danger.

In the larger Canadian cities surgery in every department is pretty much what it is in the more favored centers of Europe. There is as much refinement in diagnosis, as much dexterity and courage in performing surgical operations, and as much nicety in the technique. All the cavites of the body, brain, chest, and abdomen have been explored and the diseased organs operated upon. Canada follows Europe closely, very closely, in all her work. She has had the boldness—may she be pardoned—to precede Europe in some departments of surgery. The tongue and lower jaw were together first removed in Canada; the innominate and the gluteal arteries were first ligated in Canada; and the credit of

the first nephrectomy, which writers give so generally to Germany, belongs to Canada and to Montreal. But why should Canada be in any way behind? The better classes of her students, not content with receiving instruction in their own medical schools, pass one, two, sometimes many years in Europe before commencing the practice of their profession in Canada. London, Dublin, Edinburgh, Paris, Vienna, Berlin are never without a contingent of young Canadian graduates, and many Canadian medical practitioners periodically visit Europe to add to their stock of acquirements and to renew the zest and relish to professional labor.

Whether a mixed or an unmixed good—the art of surgery is becoming more and still more divided into an ever-increasing number of special or particular branches of study or pursuit, each branch having its respective province or domain, which, it cannot be denied, is sometimes kept more distinctly by an exaggerated interpretatation of its importance. Yet each must ever remain cognate to and in close relationship with every other department of the art, for there are no limits or boundaries to their various departments, and a seemingly intimate acquaintance with one and a total nescience of others are crass ignorance of all, for "all are but parts of one stupendous whole."

FOURTH DAY—JULY 29TH.

ADDRESS IN BACTERIOLOGY.

DR. G. SIMS WOODHEAD, of London, delivered the Address in Bacteriology.

Had it been stated twenty years ago that one of the annual addresses delivered before this Association would be devoted entirely to a review of the subject, or part of the subject, of bacteriology, such statement would have been received as coming under the category of prophecies not likely to be fulfilled.

Bacteriology, though a comparatively new science, has already made so deep an imprint on the science and practice of medicine that the enumeration in catalogue form of the various facts upon which, according to our present knowledge, the solution of important medical and surgical questions depends, would occupy too much time. This address will indicate briefly the extension and limitation of the bacteriology of medicine. Extremists have little claim to be considered in the matter, and although most thoughtful men maintain that bacteria play a most important *rôle* in the production of disease, it is equally certain that no claim for anything beyond such important share can be claimed for the most virulent of pathogenic microbes.

A knowledge of the life-history of bacteria and the relation of these organisms to specific infective disease is essential to every scientific student of medicine.

It has been too much the fashion to look upon bacteriology as an art rather than as a science. It was supposed that when evidence had been obtained that a definite microörganism was associated with a specific disease, and that when a means had been found of preventing its access to the tissues or of destroying this organism, the limits of what bacteriology could teach would be reached. Thanks to the genius of a Pasteur, however, bacteriology is now looked upon as a branch of science the study of which may afford help in the solution of even fundamental problems in biology; it has assumed such importance, indeed, that into its service have been pressed the general biologist, the botanist, and the pure physiologist; whilst all who practise medicine and surgery feel that they must, at least, be conversant with the principles that underlie its study.

It would be a waste of time to attempt to trace the history of fermentation, of putrefaction, of septic conditions, and of the relation of bacteria to certain diseases, but it may perhaps be of advantage to insist that there has been a continuous evolution and extension of theories in regard to the nature of the action and inter-action of bacteria on the tissues and organs of the human body. First, there was the mechanical theory, in which it was maintained that death was due to the impaction of groups of microörganisms in the capillary vessels; then came the theory that these organisms used up the oxygen so rapidly that the tissues received an imperfect supply, and somatic death ensued. Both of these may be partial explanations, but unless it is known how the oxygen is cut off (even accepting this explanation as partially correct), a satisfactory solution of the difficulty is yet wanting. The administration of phosphorus is followed by imperfect oxygenation of the tissues, and fatty degeneration occurs. How this is brought about it is difficult to say; similar degenerations are found in certain diseases set up by microörganisms. Do such organisms, then, when introduced into the body, act directly by taking up and using for their own purposes the oxygen which would otherwise be applied to the nutrition of the tissues? Do they attack the tissues directly, making their way into their substance, and so devitalizing them that they are unable to perform their functions properly? Do the products formed by these organisms, being thrown out, as it were, in a nascent condition, immediately lay hold of the weakly combined oxygen in the blood, and remove it so that new compounds may be formed? Do these products act directly on the cells, and interfere with their functional activity? Or, lastly, do the cells when called upon to perform extra work in getting rid of these organisms or of their products—which in either case must be looked upon as foreign bodies—undergo such excessive stimulation that the supply of oxygen is not equal to the demand, so that the functional activity of the cells is in excess of their facilities for nutrition, and their protoplasm undergoes changes described as cloudy swelling, followed by fatty degeneration exactly like those met with in phosphorus-poisoning?

At one time it would have been deemed impossible to answer these questions; but as the study of the chemistry of bacteria has been utilized, information on these points has become more and more definite, and as such definite information has been obtained, it has become possible to indicate at least some of the processes that are going on in certain of the specific infective diseases, and to draw inferences, some of which, however, have still to be put to the proof, as to the methods to be adopted in waging war against bacteria.

One of the most important outcomes of the study of the relations of bacteria to disease is the development of a pathologic chemistry; hitherto pathologic chemistry has been elaborated and extended in order that it might be applied to the examination of certain products and ex-

cretions met with as the result of diseased conditions of various organisms; but beyond facilitating search for slightly modified physiologic products, this physiologic chemistry has rendered but little service. This pathologic chemistry has a great future.

There is not a sufficiently marked line of demarcation drawn between the curative effect of the antitoxic action and the production of immunity; the two are perfectly distinct, though they are too frequently inextricably confounded in respect to the interpretation of experiments.

It is to an ultimate modification of the protoplasm of the cells of the body under the influence of organic or inorganic therapeutic agents that future triumphs must be looked for in the treatment of specific disease where vaccination has not been resorted to or has failed. Of this direct action on protoplasm there are only two or three examples, but there can be little doubt that quinine and arsenic in malaria, and mercury and perhaps potassium iodide in syphilis, act somewhat in this manner. In the case of mercury, even the untoward results sometimes attending its exhibition afford evidence of the direct action of the mercury on the protoplasm of the cells, the cells, as it were, becoming exhausted under the influence of the mercury, and so becoming an easier prey to the specific virus.

Should it be definitely proved that antitoxins are formed as the result of the action of certain bacteria on the tissues and fluids of the body, such a method—as at present within reach—could prove of little practical value in the treatment of disease, for in the cases mentioned, in which any definite results have been obtained, very large quantities of the blood or serum from immunified animals have been used in order to obtain the results described, and it is difficult to imagine how it would be possible to obtain sufficient of the antitoxin from living animals, however vaccinated; whilst the risks to patients would be so great that such treatment would be unjustifiable.

The influence that bacteriology has had on medicine and surgery is best appreciated when some special process or condition is followed in its etiology, progress, and termination; in inflammation, for example, the study of bacteriology has revolutionized our conception of the whole subject, and, moreover, has enabled us to bring into harmony theories and interpretations of facts which hitherto have appeared to be diametrically opposed to one another. The various observations as to the changes in the fixed and parenchymatous cells were supposed to put out of court the processes of emigration of leukocytes and changes in the walls of the vessels. A battle royal waged between those who held that there could be no inflammation without vascular phenomena, and those who maintained that these vascular phenomena were merely secondary events, and the difficulty of deciding on this question may be readily imagined when it is borne in mind that in the human subject and the higher animals on which experiments were at first exclusively made it is impossible to set up any definite irritative changes without calling to our aid traumatism or some form of chemical irritation; and also that in such experimental subjects even the tissues which in a normal condition are extra-vascular have, under the slightest irritation, a tendency to return to their embryonic vascularized condition. It was then found that certain bacteria when introduced into the tissue had the power of setting up rapid inflammatory changes; then the pathologist and the zoölogist agreed to ascertain whether changes comparable to those set up in inflammation would be set up either by bacteria or through the irritant products when brought in contact with lower unicellular organisms or with simple organisms in which no bloodvessels are ever developed.

As a result of the various observations made, inflammation is looked upon as only part of a series of changes, all of which work toward a definite end, namely: first, the getting rid of foreign bodies, whether organic or inorganic, whose presence might exert a deleterious influence on the issues in which they are lodged; and secondly, to repairing the breach that has been left at the point at which these foreign bodies have been injected.

The soluble products derived from pure cultures of microörganisms are now known to be composed of a large number of different substances, to isolate which various attempts—many of them unsuccessful—have from time to time been made.

The methods of chemical bacteriology, corroborated by chemical observation, have determined that diphtheria is dependent for its specific symptoms on the diphtheria-bacillus. This bacillus does not attack healthy individuals, but if there is slight ulceration of the throat, or slight fibrinous exudation on the surface of the tonsils, or the posterior surface of the velum palati, diphtheria suddenly makes its appearance. Sometimes the exudation appears to be associated with the local action of the diphtheria-bacillus itself, but usually the diphtheritic process appears to be secondary to small patches of ulceration and exudation. Experiment offers the explanation of this fact. The diphtheria-bacillus does not appear to have the power of attacking healthy mucous membrane; but when it finds a nidus in coagulated fibrin it is able to produce its special secretion or enzyme, part of which acting on the fibrin, just as the enzyme met with in the stomach acts on food, rapidly transforms the insoluble and undialyzable fibrin into soluble albumoses, some of which in turn are utilized for the nutrition of the microörganism, whilst the remainder of the enzyme and the products of its action on the fibrin, absorbed by the lymphatics and bloodvessels, are carried into the system, where they act on the tissues and organs, and, after being broken down into lower molecular combinations in certain organs, are excreted.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, AUGUST 13, 1892. No. 7.

ACUTE INFECTIOUS EPIPHYSITIS.

BY W. M. L. COPLIN, M.D.,
ADJUNCT PROFESSOR OF HYGIENE AND DEMONSTRATOR OF PATHOLOGY IN JEFFERSON MEDICAL COLLEGE,
AND
D. BEVAN, M.D.,
ASSISTANT IN DEPARTMENT OF HYGIENE, JEFFERSON MEDICAL COLLEGE, OF PHILADELPHIA.

DEFINITION.—Acute infectious epiphysitis is a disease peculiar to infancy and adolescence, and is due to the specific pathogenic action of one or more of the microbes of suppuration. It is a disease the etiology of which modern bacteriologic research has revealed, and which for more than a century and a half had baffled the most diligent inquiry of able scientific observers.

SYNONYMS.[1]—The disease is best known in the United States by the names of acute infectious osteomyelitis and acute infectious periostitis. Acute infectious arthritis is also applied to a special form of epiphysitis.

HISTORY.—In 1805 J. L. Petit described an acute affection of bone, which we now recognize as acute osteomyelitis. This is the first distinct mention that we have of this disease. Allusions were made to it also by Gooch, Pott, Cheselden, Hay, and Abernethy.

Bearing on this subject, M. Renaud, in 1831, published a paper "On Inflammation of the Medullary Tissue of Long Bones," and reported five cases occurring after amputation, all of which terminated fatally.

Cruveilhier refers to it as "phlebitis of bones," when suppuration supervened on amputation, and attributes to it the formation of visceral abscesses.

Jules Teilhard La Terrisse first employed the designation acute arthritis of infants in 1831, in his thesis submitted for the degree of Doctor of Medicine, to the Faculty of Medicine in Paris, in which he reported three cases in children, aged respectively three, six, and nine days. At the necropsy pus was found in each case in several of the joints, and in one case a number of abscesses were found in the lung.

Nélaton is credited by Roux as having devised the term osteomyelitis in 1834; in 1844 he published a brief account of it under the title of "Suppuration of Bone."

Mr. Stanley, in 1849, in his monograph on "Diseases of Bone," gives an accurate description of the kryptogenetic, or the then so-called spontaneous variety. Schultzenberger directed attention, in 1853, to this disease as "Rheumatoid Periostitis."

Chassaignac, having studied it in the same year, and recognizing its infectious character, gave to it the name of "Acute Infectious Osteomyelitis," and, for the first time, applied to the spontaneous variety, in 1855, the name "Osteomyelitis," and detailed four cases that came under his own observation.

In 1855 the affection was described by Becker as "Phlegmonous Periostitis." Almost at the same time Klose published an account of thirteen cases under the term "Meningo-osteo-Phlebitis." In each case there was epiphyseal separation. "Epiphyseal Ostitis of Adolescence" was the term applied to it by Gosselin, at about this time.

Gamet's thesis on this affection appeared in 1862. He entitled it "Juxta-epiphyseal Osteo-periostitis." Geraldès designated it "Phlegmonous Periostitis." V. Roser bestowed upon it the name of "Pseudo-rheumatism," on account of the number of bones involved and the frequency with which the joints were implicated. Luecke is given credit with having first called attention to its infectious character. Lannelongue gave a description of it in 1878, under the heading of "Acute Osteomyelitis of Adolescence."

Mr. T. Smith, a surgeon in St. Bartholomew's Hospital, has reported two cases of "Acute Arthritis of Infants." In his treatise on the *Disease of Joints*, Barwell describes the affection as "Peracute Articular Ostitis;" he also uses the term epiphysitis, taking his definition from Stromeyer's memoirs on *Ostitis Articular Peracute.*

From the frequent occurrence of the separation of the epiphysis from the diaphysis, Klose describes it as "Epiphysentrennung," also as "Meningo-osteo-Phlebitis." Krause called it "Acute Purulent Synovitis in Infants."

MacNamara, in the first edition of his work, speaks of "Acute Epiphysitis"; but, exception being taken to this term as applied to this disease, in the third edition he refers to it as "Suppurative Ostitis." In the work of Thomas Jones on *Diseases of Bone*, he discusses it under the subject of "Acute Osteo-myelitis and Necrosis of the Epiphyses and Articular Extremities of Bone."

[1] The various synonyms used will be fully discussed in considering the history.

NORMAL HISTOLOGY OF BONE.—Before considering the etiology or the pathology of acute infectious epiphysitis it is necessary to form a clear and comprehensive idea of this subject, that we should recognize and differentiate between the conditions existing at, and previous to, the completion of ossification, the arrangement of the vascular system, and other special anatomic and histologic peculiarities of the bones, all of which exercise a potent influence in determining pathologic conditions in these structures.

Bone is produced by a temporary cartilaginous substance being converted into medulla. This change is induced by the cartilage becoming pierced by channels or bloodvessels with but an imperfectly developed coat of soft connective tissue, as it is necessary that actual contact should take place between the blood and the cartilage-cells before further development can occur. The cartilage-cells, thus receiving an additional amount of nutriment, are stimulated to increased activity. With the further development of the bone, the periosteum and endosteum are produced, and then we have the bone growing from the cells contained in the medulla, the endosteum, and the periosteum.

The periosteum is developed by the outer layer of cartilage assuming a reticulated fibroid character, in the meshes of which are contained osteo-genetic cells, and it is by their further and continued development that the bone is increased in thickness.

The bone receives its nourishment not only from the nutrient artery, but also from innumerable small arteries that penetrate into the bone from the periosteum, being derived from arteries of adjacent structures. The arteries are distributed throughout the compact portion of the bone by the system of Haversian canals. In the cancellated structures some vessels follow along the trabeculæ, while others span across the space occupied by the soft marrow. In this situation they bear a strong resemblance to the blood-sinuses in the spleen. The sinuses are larger than the arteries that empty into them. In addition to the veins accompanying the nutrient artery, those arising in the compact tissue and those making their exit through the articular cartilage, there is a venous plexus surrounding the bone at the junction of the epiphyseal cartilage with the diaphysis, greatly facilitating the flow of the blood from this situation. The epiphyseal cartilages receive their blood-supply from the arteries of the medulla.

Continuous with the endosteum in the medullary cavity is a network of adenoid tissue, which is also found accompanying the bloodvessels in the Haversian canals. This is regarded by many authorities as the commencement of the lymphatic system in the bone. In the meshes of this structure are numerous cells both morphologically and functionally resembling the corpuscles in the spleen. The subcartilaginous layer of bone is a dense plate of compact osseous tissue, situated between the epiphysis and diaphysis. It is pierced by numerous vessels entering the epiphyseal cartilage from the shaft. From its peculiar structure it possesses great resistance to all inflammatory processes. In it there is no definite Haversian system.

The medullary substance occupies the central cavity of tubular bones, and is also continuous with the soft tissues contained between the trabeculæ in the cancellated portion of the bone. At the extremity of the diaphysis it terminates in bulbous processes, and from these numerous other processes are given off, which penetrate the subcartilaginous disc, and, uniting with one another, form arches.

ETIOLOGY.—The specific cause of acute infectious epiphysitis is not a special organism, as Becker at one time supposed, but—as determined by Krause, Garré, and Rosenbach, whose researches and observations have been substantiated by many of the more able bacteriologists of the day—this disease is produced by one or more of the varieties of pyogenic microbes the entrance of which into the circulation is usually effected through some abrasion of the skin, or, less frequently, through the mucous membrane of the respiratory or alimentary tracts; a decayed tooth, or any suppurating inflammatory focus, however small, may be a *portio invasionis*. The organisms have, apparently, a predilection for the long bones, and more frequently attack the one extremity, that from which the development of the bone is principally accomplished, *e. g.* the lower epiphysis of the femur and the upper epiphysis of the tibia.

The short and flat bones are not exempt from the process, and that they are not frequently involved may be ascribed to the fact that their position and function render them less liable to injury, and that the evolving changes in their development are not of such an active character as we have observed in the long bones.

The selective affinity of the microbes for one or the other extremity of a bone, or for any particular class of bones, is not incomprehensible when we study the anatomic structures. We discover that in the medullary tissue, in proximity to the epiphyseal cartilage, where the transitional changes and the vascular supply attain their maximum, and where the blood-pressure and velocity are at a minimum, where the capillaries are mere excavations, sinuses, or have but an imperfectly developed wall, we have all the conditions most favorable for the localization and multiplication of microorganisms, the pathogenic action of which is in health counteracted by the inherent vital resistance of the cells.

Roswell Park asserts that the marrow is "predisposed to collect and retain germs, and that it is most sensitive in its reaction"; from its constitution it also affords a soil that is particularly adapted for their nourishment and proliferation.

As early as 1874, Klebs, Recklinghausen, and others, discovered the presence of cocci in the bodies of patients dying of acute infectious epiphysitis, Pasteur found micrococci, and in 1881 Schüller amputated a limb, and found the same organisms in the bone, periosteum, and articular cartilages. In the same year Rosenbach cultivated from one case the staphylococcus aureus and albus, from another the staphylococcus albus alone, and from a third the staphylococcus aureus and the streptococcus pyogenes. He also produced the disease in animals by injecting the pus from a furuncle, after subcutaneously fracturing the bone, and with the pus from osteomyelitis produced in the subcutaneous tissues a furuncle.

Becker, in 1883, made most careful and extended observations, and thought that he had discovered the specific microbe of osteomyelitis. Rodet has produced osteo-myelitis by the intravenous injection of cultures of the staphylococci, and without fracturing or otherwise injuring the bones; this, however, was possible only by intravenous injection, never in his hands by the mere introduction into the subcutaneous connective tissues. Krause, in 1884, cultivated from the pus the staphylococcus aureus and albus, and found the same organisms in effusions about the joints.

Subsequently, he produced the disease in animals by injecting pure cultures of these cocci, and making subcutaneous fractures. Garré corroborated the experiments of Krause, and also discovered the staphylococcus in the blood. Krause observed lesions in the muscles, kidneys, and other organs identical with those found in pyemia.

Kocher experimented by injecting foul and putrid material into animals, and was sometimes successful in producing the disease. His failure in the other cases was probably due to the fact, that the substances injected contained none of the pyogenic organisms.

In children that have inherited constitutional taints, as those of tuberculous and syphilitic parents, the resistance to the action of pyogenic organisms is much diminished, so that we find that they are predisposed to osteomyelitis, as also are those that have, or are convalescing from, any of the acute infectious or exanthematous diseases. Thus, T. Holmes, in *The Surgical Treatment of Diseases of Infancy and Childhood*, reports the case of an infant but seven months old, in which suppuration of the hip-joint succeeded an attack of chicken-pox.

Dr. K. McLeod's case of epiphysitis, reported in the *Indian Medical Gazette* for 1883, was attributed to variola. Leucke, Keen, and Renne have demonstrated, and as experience and history of the cases confirm their conclusion, it may be received as a truth, that the specific poisons of diphtheria, typhoid fever, scarlatina, measles, rubeola, and variola, prepare the medullary tissues for the reception of the pyogenic germs.

An influential rôle is assigned to exposure to cold and damp as a predisposing factor, and as the exceeding activity of the tissue-changes in growing bone involves an instability, any sudden change tending to disturb the equilibrium of the circulation will create the conditions necessary for the inception of osteomyelitis. Professor Senn avers to have repeatedly observed cases of osteomyelitis in boys, who, after active and exciting exercise, have plunged in cold water or have stretched themselves out upon the cold ground to rest.

PATHOLOGY.—There are three situations that, according to Howard Marsh, furnish a ready nidus for the localization of microbes, as follows:

"Immediately subjacent to the cartilaginous disc; in the vicinity of the ossifying center; in the line of union between the epiphysis and diaphysis."

Their localization in the diaphyseal side of the epiphyseal cartilage, as in the soft tissues, determines an inflammation in which we may observe the same tissue-changes that occur in other structures subjected to the action of these organisms.

There is at first an increased supply of nutrient, quickly followed by a rapid multiplication of the nuclei of the fixed cells.

These cells surround themselves with a layer of granular material, and the whole is encased within a shell of earthy matter, supposed to be elaborated by the nucleus. A poor and lowly organized form of bone is thus produced. This is the analogue of the granulation-tissue found in other structures of the body. The cells, as a result of their rapid proliferation and the unyielding character of the osseous tissue, are crowded together to such an extent that their development is materially interfered with; consequently they offer but feeble resistance to the action of the germs and their ptomaïnes.

When the epiphyseal cartilage is primarily affected, the nuclei of the cells undergo rapid division and subdivision, forming masses of cells, and these conglomerations, the progeny of the cartilage-cells, becoming permeated by bloodvessels, are converted into medulla, which may continue to develop until it reaches the surface of the articular cartilage, and then we have what is frequently described as an articular ulcer. The process may also extend in the other direction, and communicate with the medullary cavity. Subsequently, we shall have a

sinus formed, and an open passageway for the pus between the interior of the joint and the medullary canals.

We perceive that the tissues adjacent to the inflammatory focus are saturated with the transuded serum of the blood, and there are present numerous leukocytes that have migrated from the vessels. We discover, also, that the tissues are stained. This is attributable, not to the presence of serum and leukocytes, but to the hematin that is liberated as the result of the injury sustained by the capillaries, diapedesis supervening, and the red corpuscles having undergone disintegration.

The compact portion does not escape, for we find that the lacunar corpuscles undergo a granular degeneration, and the bone, dependent upon the corpuscles for nutrition and repair, degenerates. Several of the spaces coalescing, a cavity is formed, which ultimately opens into an adjoining medullary space. The shape of this cavity corresponds with the original growth of the lacunar system, thus assuming a more or less circular form. The canaliculi are also filled with this granular material, as are the Haversian canals. This granular substance resembles highly vascularized granulation-tissue. Absorption of the walls of the Haversian canals is the natural sequence of this process. The canals are in consequence greatly increased in diameter, and rarefaction of the bone is effected. The vessels, not being permitted to contract, remain patulous, thereby facilitating the entrance of microörganisms and their toxines into the circulation.

The veins also participate in the inflammatory process, and we have established a phlebitis, with the formation of infected thrombi. Subsequently, portions of these thrombi become detached and washed into the circulation, and are arrested in some of the viscera. At the site of these infected embolic infarcts we have founded new foci of inflammation, and metastatic abscesses are thus engendered.

One of the peculiar features of osteomyelitis is the local or pyemic condition in the bone, and this is beautifully illustrated in the case here reported (see illustration), in which there were several metastatic abscesses in the medullary substance.

Diastasis is the result of localization of the germs at the juncture of the diaphysis and the epiphysis, or when the integrity of the bone is destroyed by extension of the inflammation.

HISTORY OF THE CASE.—In reporting the history of this case, it has not been deemed necessary to go fully into the symptoms, but only to bring out the more important features, which make it differ slightly from other cases reported in the current literature on this subject. The symptoms of this disease have been so fully gone into by the various writers who have considered it, that it is not deemed at all necessary to present an elaborate history, which would, in many points, be but a repetition of well-known and well-established facts.

In the first place, the case was rather peculiar in that the child was thirteen years of age, and that the symptoms had never been active in early life. From the time when she began to walk she had complained of pains in the tibia, occurring more frequently at night, and often preventing sleep. There had been slight swelling, at about four years of age, situated just externally to the tubercle of the tibia, but this had subsided, and had given rise to no symptoms. About one year previously to the time when first seen she had received an injury, caused by a flat-iron falling on the metatarsal bone of the great toe. This had been followed by severe inflammation and the development of a small abscess, which was opened at the time. Some small fragments of bone were removed, and the cavity was freely drained. The wound healed without any apparent difficulty. The pain in the tibia, which had annoyed her for years, became more intense; her general health failed; she lost flesh; her appetite disappeared; and, from a bright, cheerful child, she became morose, disinclined to play, and showed other well-marked symptoms of diminished physical activity. Six weeks before the time when she was first seen there developed points of intense tenderness, situated immediately above and below the knee-joint, and the family states that these points were slightly soft. This was followed in about ten days by symptoms of active inflammation in the knee-joint.

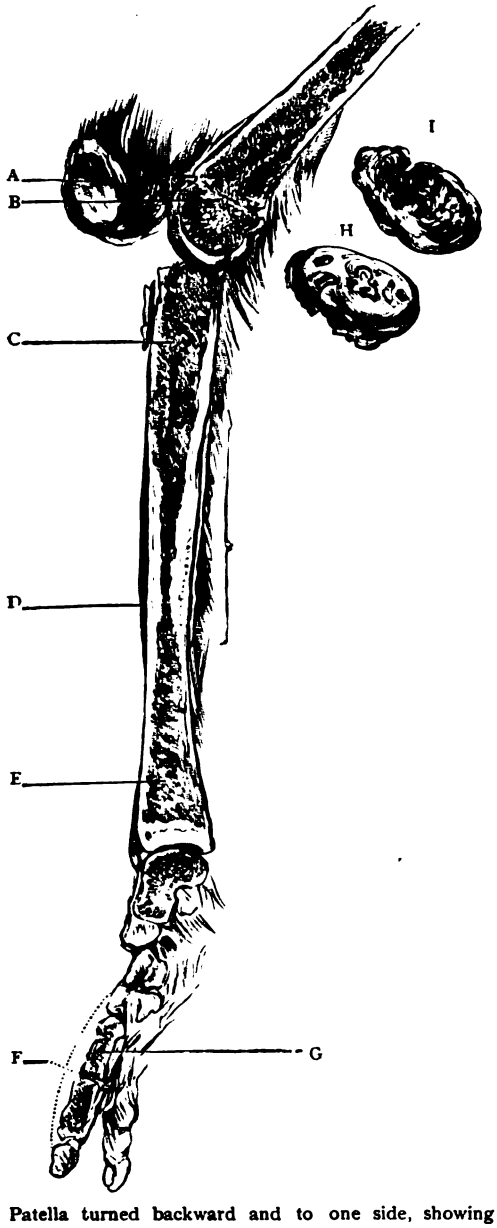
The entire crest of the tibia was painful and tender to the touch; there was some enlargement of the lower extremity of the bone; there was fever; several distinct chills occurred, followed by sweats and extreme weakness. The emaciation increased; sleep became impossible, except after the administration of opiates to lull the pain in the infected joint and quiet the nervous system. The symptoms did not seem to respond to any local or systematic treatment, and six weeks after their beginning she first came under our observation.

The physician who had attended the case diagnosticated the condition as one of white swelling, and had so treated it. She was seen by Dr. Allis, Dr. Hearn, and Dr. Coplin, and after a careful study of the case the diagnosis of infectious epiphysitis was made, and an exploratory operation was decided upon. When the knee-joint was opened, the enormous extent of the pathologic process seemed to demand the amputation of the limb, and after gaining the consent of the parents this was done. The accompanying illustration shows the extensive infiltration of the bones affected. There was the "flail joint," and the development of other well-marked

symptoms which are usually associated with the disease.

After amputation the girl rapidly recovered.

FIG. 1.



A. Patella turned backward and to one side, showing its lower surface.

B. The lower extremity of the femur, showing the line of the epiphysis and a distinct border of fatty degeneration just where the epiphysis joins the shaft. In the lower extremity of the femur are several small round or irregular dots that mark the position of metastatic abscesses in the bone. The periosteum of the femur is slightly thickened just above the epiphyseal line. The epiphysis is normal.

C, D, E. Sawn section of the tibia, showing the condition of its medullary canal; at the upper extremity of the tibia the shaft terminates in a jagged, irregular extremity that has been in apposition with the epiphysis. The epiphysis is placed over on one side at H, with a view of the upper surface, while at I the view is that of its under surface. Just above the line that leads from C are two metastatic abscesses of considerable size; below this line, and extending to the line D, is to be noted the detachment of the periosteum. The periosteum is much thickened, the thickening fading off as the line E is approached. At C the bone-marrow was intensely red and congested, and there were no less than a dozen small abscess-cavities not quite as large as split peas. The external compact portion of the bone is much thickened, and just opposite the pointer there is considerable swelling along the line of the periosteum. The lower epiphysis of the tibia does not show well; at the lower extremity of the shaft, however, can be seen several small abscess-cavities. The point G is the seat of the original injury. F marks the metatarso-phalangeal articulation, the lower extremity of which should be placed to the upper extremity, as that represents the sawn section of the bone of the great toe. The great toe is also shown.

H is a view of the superior surface of the epiphysis of the tibia, the articular surface. In it there will be observed not less than five or six small openings that communicate with the abscess below and with the joint above. In some of them small fragments of necrotic bone are to be observed. The cartilaginous structures of the joint are also entirely destroyed, and the articular margins of the epiphysis show a slight fragment of the two semi-lunar cartilages.

I is the same as H, except that it is a view of the inferior surface where it came in contact with the tibia. It will be observed that in the epiphysis there is nothing more or less than an abscess-cavity, the wall of which is formed by a hard cancellated layer of bone and by the articular disc. There was no periosteum continuous with the shaft and epiphysis, and hence the epiphysis moved freely upon the end of the shaft, thus giving the well-known "flail joint" so characteristic of epiphysitis. The interior of the knee contained a considerable quantity of pus, and the synovial structures were also disorganized.

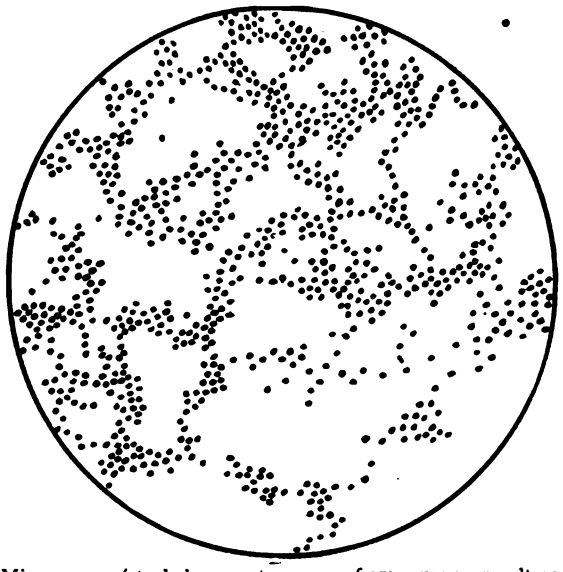
LABORATORY.—The tubes inoculated from the pus immediately surrounding the joint were, by plating and carrying the cultures rapidly through several generations, proven to contain the following organisms: The staphylococcus pyogenes aureus; the staphylococcus pyogenes albus; the bacillus pyogenes fetidus; the proteus mirabilis.

EXPERIMENTAL PATHOLOGY.—Rabbit No. 1 was injected at 5 P.M. with a culture of the staphylococcus aureus of the first generation. It remained apparently perfectly well until the day following, when it appeared rather weaker than usual. Its eyes were dull; it ate but little food; and it seemed inclined to doze a greater portion of the time. When seen later in the day, it was extremely restless; prostration was marked; and there was an inability to coördinate muscular movements. Respiration was shallow, quickened, and irregular; the heart was quick, weak, and the rhythm altered. During the latter part of the day it had refused to eat and associate with other rabbits. It sought a corner of the cage, where it remained, and was found on the next morning, dead. On post-mortem examination, no microscopic lesions were observed. Death had resulted from septicemia; tubes cultivated from the blood showed growths of the staphylococcus aureus. This was confirmed by microscopic examination.

Rabbit No. 2 was injected at 8 A.M., June 17th, with the staphylococcus albus of the first generation.

The first symptoms noted manifested themselves on the following day, at 2 o'clock. When offered food, the animal refused to eat, and the same symptoms succeeded that were observed in the preceding case,

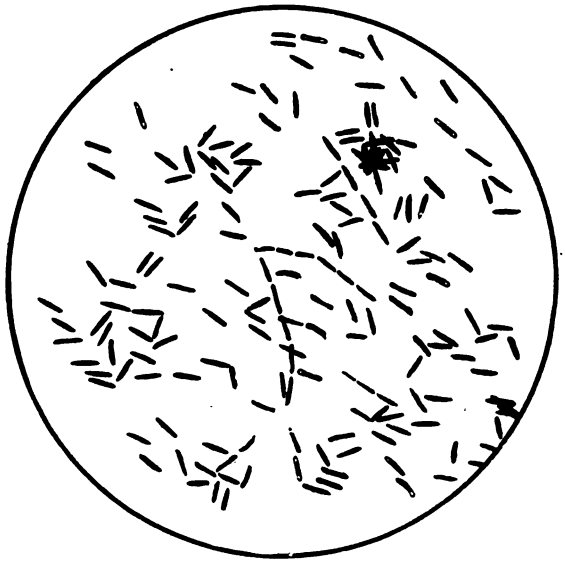
FIG. 2.



Micrococcus (staphylococcus) aureus—from agar-agar culture; Beck's $\frac{1}{12}$ homogeneous immersion; Oc. 2.

although the animal did not so readily yield to the influence of the microbes, not dying until the evening of the 20th. Cultures of the blood and urine showed growths of staphylococcus albus.

FIG. 3.



Bacillus pyogenes fetidus—from agar-agar culture; Beck's $\frac{1}{12}$ homogeneous immersion; Oc. 2.

Rabbit No. 3 was inoculated on the evening of June 24th with a mixture of the aureus and albus. It died on June 26th, at 3 o'clock, with the symptoms of an intense septic infection. In tubes inoculated a growth of the two cocci developed, as was proven by plating, staining, and microscopic examination.

On June 26th, two rabbits were inoculuted, small quantities of the organisms being employed; one, No. 4, with proteus, and the other, No. 5, with the bacillus pyogenes fetidus. No lesions were observed at the seat of inoculation. The animals were killed ten days later. There were no internal lesions. The organisms had probably been destroyed by the phagocytes and eliminated by the emunctories; their absence from the blood being proved by culture-experiments with the intra-cardiac blood and with blood from the kidneys, liver, and spleen.

On Monday, January 12th, rabbit No. 6 was inoculated with staphylococcus aureus, just above

FIG. 4.

Proteus mirabilis—from agar-agar culture; Beck's $\frac{1}{12}$ homogeneous immersion; Oc. 2.

the ankle-joint, on the right side. The injury was inflicted by means of a small sterilized gimlet, an attempt being made to puncture the bone, but on account of the dulness of the instrument, and the extreme hardness of the bone, the periosteum alone was injured, the seat of the injury being as near to the epiphyseal line as could be made, without having previously ascertained its location. The injury to the bone, as well as the injection of the microörganisms, was effected with the strictest antiseptic precautions, care being taken that the point of the puncture through the skin should not be located immediately above the point of injury of the bone, the point of inoculation being fully one inch below the point of injury.

On the day following the treatment, the rabbit

was dull; it did not eat. At the seat of inoculation was a small point of tenderness, with a distinct area of inflammatory redness. This small point of redness developed slowly into an abscess, requiring nearly a whole week to attain sufficient size to render the diagnosis positive. At this time there were well-marked constitutional symptoms, such as severe rigors, emaciation, weakness, staggering gait, and inability to stand. This condition continued for about five days, when it was noted that the injured limb had rotated directly backward, the plantar surface of the foot being upward; there was well-developed "flail joint"; the limb was considerably swollen, the abscess having evidently extended up the middle third of the femur. The rabbit at this time seemed to have improved in its physical condition; it evinced a desire to eat, and would also run around the cage in which it was confined. The emaciation did not seem to lessen; neither did the rigors entirely cease. The abscess seemed to have diminished in size, but the general usefulness of the limb did not seem to improve in the least; it was limp and useless to the animal.

The animal died on February 12th, and the following post-mortem notes were made: It was evidently emaciated to the last degree. Before any incisions were made in the skin, the condition of the limb was noted as follows: Instead of any well-marked articulation at the knee-joint, the limb was found to move in all possible directions, and crepitus could readily be obtained. What had been the abscess now seemed doughy and firm, and pitted on pressure. The skin was very carefully dissected from over the seat of the abscess, after which this was opened. The cavity was filled with a cheesy material, which emitted a sweetish odor. It was too thick to flow, and contained large flocculi, evidently necrotic tissue. The knee-joint was entirely disorganized; its capsule was destroyed; the articular cartilages were necrotic; the epiphysis of the femur was separated, and divided into minute fragments, the extremity of the bone being eroded, irregular, and the periosteum removed from its surface as far as the middle third. The abscess had infiltrated the muscle to a slight extent, and in the inguinal region there was an enlarged lymphatic gland, about the size of a shell-bark. The other joints were found perfectly healthy.

The heart was the seat of a slight pericarditis, as shown by the small quantity of flocculent lymph found in the pericardium, also attached to the visceral and parietal layers. This all washed off, and did not seem adherent. The pleura was normal, the lungs thoroughly collapsed, and the seat of several spots of petechial redness; they did not seem to be the seat of any abscesses, and crepitated at all points.

The liver showed marked swelling; its borders were not so sharp and smooth as usual; upon its surface were several distinct creamy white spots, about as large as the head of an ordinary pin; these seemed at first to be on the surface of the liver, but closer examination showed that they were beneath the capsule, and in the liver-tissue itself. The liver was very friable, and granular in appearance; it also seemed to lack the usual intensely red color found in most rabbits. On section, several spots, identical with those beneath the capsule, could be seen; some of these were removed for microscopic examination. The bile was light in color, and did not stain.

The kidneys were apparently swollen, and their capsule tense; after section, the cut surface could not be placed smoothly together. Along the cortex there were striated lines of congestion, many of them extending far down toward the pelvis of the organ. There were several distinctly white spots of extremely small size, which it was thought might be minute abscesses. To ascertain this, small pieces of the organ were removed for microscopic examination. The organ had no urinary odor, and the urine in the bladder seemed normal.

The other abdominal organs were healthy, except that the spleen was swollen and friable; the peritoneum seemed dryer than usual, and its surface did not look glistening, although no other evidence of inflammation could be detected. There was no apparent enlargement of the mesenteric glands; the retroperitoneal glands were enlarged, and a few had undergone suppuration and caseous formation in their interstices. The general muscular system and joints, other than already noted, were carefully examined, but no evidence of infection could be found.

A microscopic examination of the liver and kidney is appended.

The liver showed numerous thrombotic blood-vessels, and into the perivascular structures and the intercellular spaces rhexis had taken place; the leukocytes had emigrated, and were present in large number. The vessels radiating from the hepatic veins showed stasis, and in points the entire vascular apparatus of the lobule was plugged. The liver-cells were granular, their nuclei not staining. Many of the thrombi were the seat of beginning abscess-formation, as indicated by the young-cell exudate and mycotic invasion. The liver-cells showed the usual changes due to hyperpyrexia; they were granular, stained poorly, and in no small number neither nuclei nor nucleoli were visible; the epithelium of the bile-ducts was not altered.

After staining, so as to bring into relief the organisms, if any were present, the examination was con-

tinued with high powers: everywhere in the blood-vessels, perivascular and intercellular spaces, were hosts of microbes; and, what was peculiarly characteristic, mural implantation had occurred and colonies of organisms could be demonstrated within the walls of the hepatic vessels. There appeared to be present bacilli, for which we could not account; but Professor Longstreth expressed an opinion that they were refraction-lines. Staphylococci were present in abundance, and even a casual observer could not fail to note how thoroughly disseminated through the textures they were.

The kidneys, with low powers, showed infarcts, with areas of hemorrhagic extravasation. Small round cells were present in abundance in and about these areas, indicating inflammation and beginning abscess-formation. The epithelium of the tubes was granular, and degenerating in the highest degree. Indeed, few points were visible in which any of the histologic structures were normal. Many of these changes, like those in the liver, might be attributed to the high temperature. Many of the vasa recta were thrombotic.

With high powers, organisms were found in all portions of the kidney, and especially in and around the thrombi. Some of these microbes could be observed in the interior of the round cellular elements. There were also present rod-shaped bodies, resembling those found in the liver, for which the same explanation is offered as that already given. It is also to be remembered that cocci situated in the interstices of tissues may be stained, and look very much like rod-shaped bodies. This observation is borne out by the fact that by no amount of plating could aught but cocci be cultivated.

REMARKS. — There is no specific microbe of epiphysitis or osteomyelitis. The two are practically the same disease—that is, when the latter occurs in adolescence, due to the same organisms, and differing only in the primary site of localization of the germs.

The order of frequency with which the germs are found is as follows: Staphylococcus aureus, staphylococcus albus, staphylococcus citreus, and rarely the streptococcus pyogenes. Unless dependent upon some anomalous condition, epiphysitis never occurs after the completion of ossification, the peculiar construction of the parts and the distribution of the vessels being necessary and essential elements in its causation.

It is of interest to note, that in the effusion into the tissues, the advance-line of mycotic invasion, saprophytes were not present; neither could they be found in the metastatic abscess in the tibia, nor could any effect be observed by injecting them into healthy tissues of rabbits in quantities insufficient to produce death.

In considering the foregoing fact, it may be confidently asserted that the coëxistence of the bacillus pyogenes fetidus and proteus in the pus, was due not to primary, but to secondary infection. The staphylocci constitute the essential exciting cause of this affection, and they prepare the tissues for the reception of saprophytes. The toxines produced by the saphrophytes increase the danger of septic poisoning.

The staphylococcus aureus excites a more active inflammation than does the staphylococcus albus, and the staphylococcus albus is more active than the staphylococcus citreus, and a mixed infection, especially of the staphylococcus aureus and staphylococcus albus, is the most virulent of all. These facts may be explained by attributing to each variety of microbe the capability of engendering a ptomaïne peculiar to itself. As the result of chemical action from the presence of two such compounds in the tissue, another compound is formed, which, though not differing essentially in its action, acts upon the cell-protoplasm with greater intensity; or the hypothesis may be advanced that the amount of ptomaïnes generated by an organism is not dependent upon the number, but upon the quantity of the material supplied that it can utilize as food. Hence, it may be assumed that there are present in a part substances that are unaffected or cannot be assimilated by one organism, which to another will serve as an excellent pabulum, and from which the organism will elaborate its peculiar ptomaïne. Therefore, it is evident that if this be the case, we shall have in a given amount of material a greater production of ptomaïnes in mixed infection.

Localization of the organisms is determined by any condition that lowers the inherent vitality or physiologic resistance of the cells, or by any circumstances that disturb the equilibrium of the circulation, as pointed out in considering the etiology. In the case reported by Rosenbach, in which a child was born suffering with infectious epiphysitis, the mother showed no sign of disease; and in a similar case, personally related by Dr. Joseph Hearn, in which he operated upon a child but three weeks of age, suffering with a peri-articular abscess, the little patient, with the exception of a small sinus, which occasionally discharges a little pus, is apparently perfectly healthy.

A pyemic condition of the bone is a constant attendant upon acute infectious epiphysitis, and if the disease is allowed to progress unchecked, a general pyemia invariably ensues.

In the illustration the number of apertures communicating through the epiphyseal cartilage with the cavity of the abscess, and with that of the joint, will be noted.

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MECKEL'S DIVERTICULUM AS A CAUSE OF INTESTINAL OBSTRUCTION.[1]

BY DUDLEY P. ALLEN, M.D.,
VISITING SURGEON TO CHARITY AND LAKESIDE HOSPITALS, CLEVELAND, OHIO.

SOME three years ago it was my good fortune to operate successfully upon a case of intestinal obstruction caused by Meckel's diverticulum. The rarity of operations of this sort, together with the favorable result, has given the case added interest to me, and has led me to give the subject some consideration. Before entering upon a general discussion of the subject a short review of the case in question may prove of interest:

The patient, A. A., was a laborer, thirty-four years of age, of excellent health, his only sickness having been an attack of typhoid fever in 1876. Since that time his bowels have been regular, and he has been well. On the night of August 22, 1889, he was seized with intense pain in the abdomen. On the following morning his wife gave him senna tea, and he had a stool on the same day, and daily from that time until the night of August 29th. During this period he was perfectly well, and performed hard labor. On the night of August 29th he was seized with severe pain and vomiting. On the following morning a physician gave him a hypodermatic injection of a quarter of a grain of morphine and an enema of three quarts of water. The latter came away without fecal substance. On August 31st I saw the patient with my friend Dr. Krause. The patient had no fever; his pulse was slow, but not strong. The abdomen was distended, especially in the epigastric region. The whole abdomen was tympanitic, except to the right side of the right mammary line. I could detect the presence of free fluid in the abdominal cavity; no induration could be felt. Twice during the day the patient received an enema of three quarts of water, which returned clear. At 4 P.M. I washed out the stomach, and obtained water discolored by food, but without odor. Immediately afterward I performed laparotomy by a median incision below the umbilicus, and found the small intestine largely distended; a considerable amount of free, amber-colored fluid escaped from the abdominal cavity. A band was found extending from the region of the cecum to a point one and a half inches to the right and below the umbilicus. A coil of small intestine was twisted about this band, and constricted. The division of the band between two ligatures relieved the constricted gut. Further examination showed the cause of constriction to be a Meckel's diverticulum, perhaps four or five inches in length, in part patent, but terminating in a fibrous band. The abdomen was washed out and closed. The patient endured the operation well. After being returned to the ward he vomited a brownish material of distinctly stercoraceous odor. At 8 P.M. his condition was good; on the same night he passed flatus. He made an uninterrupted recovery. The patient was up and about on September 24th, and is now doing hard labor, having been entirely well since the operation.

In a discussion of the subject, it may be well to say a few words concerning the origin, location, form, etc., of Meckel's diverticulum. As is well known, it is the remains of the omphalo-mesenteric or vitelline duct, extending from the lower portion of the ileum through the umbilicus to the yolk or umbilical vesicle. Usually with the development of the fetus this structure atrophies and entirely disappears. Its origin is from the lower portion of the ileum. In the cases that I have examined its location has been from fifteen inches to three feet above the ileo-cecal valve; its form is various. The diverticulum may resemble a small intestine, ending like the finger of a glove, hanging free into the abdominal cavity, and having nearly the diameter of the gut itself. The opening

[1] Read before the Cincinnati Meeting of the Ohio State Medical Society, May 5, 1892.

in the gut caused by the diverticulum may vary from nearly the diameter of the gut itself to one that is very small. The diverticulum may be patent for only a short distance, or throughout its entire length, conveying fecal material to the umbilicus, and there forming a fecal fistula, or the lumen may be wholly obliterated, and the diverticulum be reduced to a simple fibrous band. At times the diverticulum is attached directly to the umbilicus or to the anterior abdominal wall. It is supposed that it may float freely in the abdominal cavity, and by chance become adherent to any part. The most common point of adhesion, as I have observed it, has been to the mesentery, in the vicinity of the origin of the diverticulum; but there are cases recorded in which it has been adherent to the posterior part of the pelvis and to the internal inguinal ring, and to the fundus of the bladder.

As to its frequency, among 3400 recorded post-mortem examinations at St. Bartholomew's Hospital, in London, it was found to be present twenty-seven times, or once in every 126. In an interesting article by Dr. Durham, in Quain's Dictionary, it is related that among 1839 cases of intestinal obstruction, seventy-five cases were found to be due to Meckel's diverticulum, or one in every twenty-four and a half cases. My own study of pathologic specimens has awakened in my mind the question whether or not more deaths ascribed to intestinal bands are not due to Meckel's diverticulum than was formerly supposed. My reason for this is that in some pathologic collections that I have studied some of the older specimens, without complete history, have simply been recorded as "obstructions due to the presence of an intestinal band," whereas in later cataloguing the curator has viewed these as probable specimens of Meckel's diverticulum, although the location of the constriction was not originally recorded in the description of the specimen. If this is true of some museums that have been most carefully arranged I feel confident that in many cases that have simply been recorded as the result of constricting bands the origin of the band has been in the omphalo-mesenteric duct.

When last in London my attention was called to the collection of specimens of Meckel's diverticulum in the museums of St. Bartholomew's Hospital and the Royal College of Surgeons, by my friend, Mr. Frederick S. Eve, through whose kindness and that of Mr. Edgar E. Willett, Curator of St. Bartholomew's Museum, I was enabled to study these specimens. Though I have carefully recorded and tabulated my observation of the specimens, together with the history as given in the catalogues, it would be impossible to produce in this paper more than a few conclusions arrived at therefrom. In St. Bartholomew's Museum are seventeen cases of diverticula; eight are without a full history; of nine the history is complete. Of these nine all died as the result of the diverticulum. Only one of them had been operated on, and in this perforation of the gut had taken place before operation. In the Royal College of Surgeons are four specimens, all of which had caused death. One of the patients had been operated on, but the cause of the obstruction was not discovered until the post-mortem examination. In all of the cases in which the history has been recorded the part of the gut constricted was the small intestine, and in most of them it was stated that it was the lower portion of the ileum. The longest time during which a patient had lived after the appearance of the symptoms of obstruction had been nine days; the shortest was thirty-six hours; the average was from three to four days.

Deaths from Meckel's diverticulum usually occur in youth or in early adult life. The youngest case that I have found recorded was in an infant, two years of age; the oldest in an adult of sixty years. The diverticulum is said to be present four times more frequently in males than in females.

Though I have looked up a large number of cases gathered in the literature of medicine, together with their history, it seems that tabulation would give uncertain results, since all cases are not discovered and reported, and many are inaccurately observed.

The symptoms of intestinal obstruction dependent upon Meckel's diverticulum are very similar to those of volvulus occurring in the lower portion of the ileum. There is pain, the location of which is not sufficiently definite to be distinctive, together with vomiting and obstipation. Treves states that if obstruction be complete, the pain is continuous, whereas, if pain is not constant, it is an indication that the obstruction is not complete. This may be a general truth, but I have seen cases in which intestinal obstruction has been complete, which for days have been free from pain, although not under the influence of an anodyne.

The diagnosis of obstruction due to Meckel's diverticulum must of necessity be rare, but there are certain considerations that would lead the surgeon to consider it among the possible causes of such obstruction. Obstruction due to Meckel's diverticulum, as has been said, is usually confined to the lower portion of the ileum, and, as is well known, the vomiting induced does not ordinarily occur so early, or with such severity, as when the constriction is higher up in the small intestine. At the beginning of the obstruction, in a patient with moderately thin abdominal walls, there may be found a local prominence in the region of the cecum. As tympanites becomes general, the distention of the abdomen will render this prominence imperceptible, but it is an important observation, and the recorded experience

of many others, that occlusion of the bowels in the region of the cecum causes distention of the central portion of the abdomen, and in the early stage more particularly in the epigastric region. In this way occlusion of the small intestine in the well-observed cases may generally be distinguished from occlusion of the colon, as the latter produces correspondingly greater fulness of the flanks. One may further distinguish between the two by means of enemata; if enemata be given, and especially if they render the region of the ascending colon dull, one can, with fair probability, at least, exclude the presence of obstruction in the large intestine. The fact becomes more apparent when we consider that sudden stoppage of the large intestine low down is commonly due to volvulous in the region of the sigmoid flexure, so that the presence of this condition could be excluded by means of enemata.

Intussusception, appendicitis, malignant growth, and fecal obstruction can, as a rule, be distinguished from any sudden closure of the lower portion of the ileum. It is not infrequently, too, that a Meckel's diverticulum may cause repeated attacks of partial obstruction, and repetition of such attacks would suggest this as their cause.

There is one point in diagnosis that I have repeatedly observed, although I have not seen it mentioned elsewhere, and which may, I believe, be an aid both in the diagnosis and in operation upon cases of intestinal obstruction, due to whatever cause; that is, the presence of free fluid in the abdominal cavity. I have repeatedly encountered it in appendicitis, strangulated hernia, and intestinal obobstruction, particularly in the two latter conditions.

When I find symptoms of intestinal obstruction, together with the presence of free fluid in the abdominal cavity, I have come to consider it a strong argument in favor of operation as affording the only chance of relief, and this fluid seems also to me to improve the chances of the operation. I have seen cases of intestinal obstruction in which at an earlier stage I was able to diagnosticate the presence of free fluid in the abdominal cavity, and as the case progressed and grew more hopeless, either at the autopsy or at operation, I have found that this fluid had disappeared. When it is present as a result of constriction of the bowel, it increases the hope that this constriction has not yet reached a point at which so serious damage has been produced as necessarily to prove fatal. This fluid, in my observation, tends to decrease as extensive adhesions due to advancing inflammation take place. Care must be taken to distinguish between free fluid in the abdominal cavity and fluid in the intestines, which may fall from one side to the other by change of position, as I have seen it occur, and have been able to demonstrate at the post-mortem. In operating for intestinal obstruction, if my suspicion is correct that it is more frequently due to the remains of the omphalo-mesenteric duct than is commonly supposed, since the clinical evidence is that this obstruction is located near the cecum, the danger of its being overlooked as a cause of obstruction will be decreased, and the operator will perhaps find with greater rapidity the cause of the difficulty.

When obstruction of the bowels takes place, and the small intestine becomes greatly distended, it is with the greatest difficulty that the bowel can be examined, unless it be permitted to escape from the abdominal cavity. This escape always adds to the difficulty of the operation, especially when the abdomen is tense, and to the danger of the patient. The prevention of the escape of the intestine has, in a series of reported cases, resulted in the cause of the obstruction of the bowel remaining undiscovered, and the death of the patient. All who have operated repeatedly for abdominal obstruction know with what difficulty distended intestines can be returned to the abdominal cavity, unless the gas be removed, and the shock and danger to which the return of the intestine or the removal of the gas subjects the patient. If the surgeon proceeds at once to examine for the possible presence of a Meckel's diverticulum, beginning with the cecum, extending his search upward, it is a matter of but a moment to ascertain whether a Meckel's diverticulum be present or not. He thus avoids the loss of much time and the large escape of the intestines resulting from a less systematic search.

Possibly the median incision is the best. When the diverticulum is found it should be divided between two ligatures, since it must be remembered that the diverticulum is often patent, and might discharge fecal matter into the abdominal cavity. Though the intestine that is constricted may be very seriously decreased in caliber, it must be remembered that this does not necessarily prevent a subsequent return to its normal capacity, and great care must be taken to distinguish between the intestine that is temporarily reduced in caliber through constriction and one that is permanently narrowed by organic changes. On account of the serious condition of patients with intestinal obstruction when operated on, it is probably best to content oneself with a division of the constricting band, and not to attempt its resection.

Though there are many points that have received but brief mention, the time at our disposal will not admit of their further elaboration, and the object of this paper will have been secured if it directs the attention of operators more specifically to Meckel's diverticulum as a cause of intestinal obstruction,

and thus enables them more quickly and more easily to recognize and overcome the difficulty.[1]

THE MORBID PROCLIVITIES AND RETROGRESSIVE TENDENCIES IN THE OFFSPRING OF MULATTOES.[2]

BY W. A. DIXON, M.D.,
OF RIPLEY, OHIO.

OBSERVATIONS extending over a period of more than thirty years have thoroughly impressed the conviction upon my mind that the offspring of mulattoes are the subjects of constitutional diseases to a greater degree than are those of unmixed blood, and that when confined strictly to their own class they scarcely reach the fourth generation in descent, by reason of disease and sterility.

I have often wondered if others have had occasion to notice this feature in mulatto life, or whether the conclusions at which I have arrived are false and unwarranted, from being based upon observations confined to a local district, yet rich in examples that go far to establish the view propounded.

I believe that there is not much to be found in current medical writings upon the subject. Our locality is on the border between the slave and the free States of fifty years ago and more. It was then, and long before had been, the custom of many wealthy planters, as they advanced to old age, to set free that portion of their estates which bore to them a filial relationship, and establish them in homes in a section of country where they would receive fair treatment, consideration and respect as citizens and members of the community in which they should reside. Such an opportunity was offered to them in our locality, largely populated by Abolitionists and sympathizers with the slave.

Thus, a community as it were of mulattoes, whose parents on the father's side were white men, mostly of great wealth and position, socially and politically, and principally of New England stock, existed near us. The most of these people were complete types of physical perfection, tall, muscular, and perfectly developed. Many of them lived to old age—quite to one hundred years. Their wives were mulattoes. They were proud of their parentage and light color of skin. They made good citizens, and often were prosperous as farmers. Their prosperity and pride almost separated them from their less fortunate brethren of darker color, and their children intermarried, that their color and race might continue.

I can trace some of these families through three or four generations. Those of the first cross were robust; those of the second were paler, more ashlike in complexion, of slender form, plainly bearing many of the characteristics of predisposition or inevitable tendencies to special diseases of the strumous type. The third union resulted in less fertility and greater predisposition to disease.

Now, the children present the scrofulous physiognomy. The fourth union, still less fertile than the others, brings forth a progeny largely suffering from cutaneous affections, ophthalmia, rickets, dropsy of the head, white swelling of the knee-joints, morbus coxarius, diseased glands, suppurating sores, uutil the whole generation is quite extinct. I can scarcely find any of the fourth generation in good health.

These people have had all the advantages that their neighbors enjoyed. They had the best of schools, excellent religious privileges; were moral, upright, and highly respected. They were able to maintain an academy of learning, from which their sons and daughters could go forth amply equipped to struggle in the unequal contest of life. All of these institutions succumbed to the waning constitutional vigor of their offspring.

The academy is no more. The schools and churches, so ably maintained by their forefathers, are extinct. The old family name is scarcely heard, and inquiry reveals the fact that their offspring were tuberculous, and either died in youth, or, if living, were so sterile that no descendants scarcely of the old families can be found. This is true not only of one but of many groups of families.

The contrast between the histories of the mulatto and the white and the negro families residing side by side, as to health, as to power to resist disease, and as to longevity, is too great to escape notice or to be regarded as merely incidental.

It is now observable by the colored people themselves that if a mulatto marries back to the parents' stock the children to a greater degree escape scrofulous affections.

I have spoken to a number of physicians in this locality upon this subject, and they all agree with me that tuberculosis exists to an excessive degree among the mulattoes; that they are inferior in vitality, intelligence, and consequently morality; that they exhibit a mortality more considerable than that of the surrounding whites or negroes, and without reunion with the parent stock the mulattoes would soon become extinct.

In the first generation they are quite prolific among themselves, and arrive at maturity rather promisingly, but when these children intermarry they and their descendants are not prolific, a large

[1] In performing a difficult ovariotomy since the reading of the foregoing paper, I found a Meckel's diverticulum extending from the ileum and attached to the right horn of the uterus, close to the Fallopian tube.

[2] Read before the Section of Diseases of Children, American Medical Association, Detroit, Michigan, June 10, 1892.

portion being sterile at even the second and third generations. It is noticeable that the mulatto girls develop in advance of both white and negro girls, but as women they fade away much sooner. It is noticeable also that in the second and third generations of pure mulatto intermixture quite all of the children born are girls, and these are noticeably sterile.

This fact I have observed so much that I believe it to be a physiologic truth. I should be glad to learn if the observations of others who have given any attention to this subject confirm my own.

If this be true in one locality and in the mingling of the white and black races there, why not look for the same result in the cross of races elsewhere, and thus the introduction of the virus of constitutional diseases which is transmitted through the succeeding generations? I believe that ethnologists mainly agree that human hybridity cannot be maintained without reversion or fresh supply from parent blood.

Dr. Robert Knox, in his work on *The Races of Men*, says: "I do not believe that any mulatto race can be maintained beyond the third or fourth generation by mulattoes merely. They must intermarry with the pure races or perish." M. Georges Pouchet says "that such a race, such a type can only have an ephemeral existence." Dr. Paul Topinard refers to a record on this subject in North Carolina. "There the caste of free men was constituted entirely of mulattoes freed by their white fathers. The State, dismayed at the important position which they assumed, put a stop to this liberation. Left to themselves their number diminished at the rate of twenty-nine per cent. decennially."

Ethnologists have sought in vain among the nations of the earth for a race manifestly hybrid, with well-defined characters, intermediate between two known races, perpetuating itself without the concurrence of the parent races.

Dr. Pritchard, in his *Natural History of Man*, in an effort to find such subsisting by themselves, could only point out three instances, the Griquas, the Calusos and the Papuans.

Broca and others object to the truthfulness of these examples, and assert "that by no means do they prove that a mixed race can perpetuate itself separately."

If Dr. Pritchard, in his vast researches, finds it difficult to discover three examples of hybrid races subsisting by themselves, and they so liable to objection that the other ethnologists deny the proof to be conclusive, then may we not inquire into a cause for the introduction and propagation of diseases, physical weakness, sterility and conditions unfavorable, either for moral or physical development beyond the microbe or the bacillus.

The same causes that degenerated and brought to an ignoble end some of the royal lines and the most ancient blood of Europe are at work still and in our midst also.

Look, and wherever you see the greatest intermingling of races there you see raging tuberculosis, carcinoma and struma in all their terrorizing forms; there you see an excessive mortality among the children, a disparity between the number of men and women, the women being in the majority; there you see the scientist with his microscope hunting for the enemy of life and health in the sputa, the excreta and the cell-elements; when in fact the modification of the racial type, by the influence of some media not apparent in the cell-elements themselves, altered in some way by miscegenation, generates this virus—these microbes, these bacilli, which claim for their victims more than twenty-five per cent. of the dying.

Are there any races comparatively free from tuberculosis and all strumous affections? Wherever you see the purity of race maintained in civilized or barbarous countries there you see little or no tuberculosis and scrofula. Do these affections prevail among the Jews and other unmixed races to anything like the extent observed in countries overrun by immigrants of every race and producing crossed races without limit or regard to race affinities?

Broca mentions the assertion by other ethnologists "that the United States, where the Anglo-Saxon race is still predominant, but which is overrun by immigrants of various other races, is by that very circumstance threatened with decay, inasmuch as this continuous immigration may have the effect of producing a hybrid race containing the germ of disease, decay and future sterility."

There are serious men who have predicted from ethnologic causes the overthrow of the United States, just as Ezekiel predicted the ruin of Alexandria.

The difficulty in finding instances in the past of nations surviving such influences may excite faith in the prediction, in spite of our unexampled growth, that the fundamental facts as to the perpetuation of crossed races will ultimately prevail even in our own country.

In conclusion, I am fully conscious of the fragmentary nature and narrow scope of this paper. I have made no attempt to go into the literature upon this subject, with which indeed I am too imperfectly acquainted.

I have simply endeavored to set forth these crude ideas, which have been the outgrowth of my own observation. If they stimulate the profession to a livelier sense of the importance of looking back beyond the bacillus, and of teaching purity of race in

order to secure greater freedom from tuberculosis, less mortality, less crime, less idiocy and insanity, and greater longevity than are found among any race of hybrids, it will fulfil the object for which it was written.

THE OPERATIVE TREATMENT OF VENTRAL HERNIA RESULTING FROM ABDOMINAL SECTION.[1]

BY D. TOD GILLIAM, M.D.,
PROFESSOR OF OBSTETRICS AND GYNECOLOGY AT STARLING MEDICAL COLLEGE, COLUMBUS, OHIO.

VENTRAL HERNIA, succeeding abdominal section, differs from the ordinary forms of hernia in that there is no sac with a constricted neck. It forms a broad-based protrusion of the abdominal wall, and is the result of a stretching and separation of the abdominal parietes. The mischief commences in the line of incision, usually the linea alba, which, yielding to the pressure of the abdominal contents and the lateral traction of the abdominal muscles, bulges forward. This forms an entering wedge, and progressive thinning and separation of the fibers go hand-in-hand with increase of bulk. The bulwarks that prevent this occurrence, under natural conditions, are the triangulated arrangement of the superimposed fibers of three sets of muscles, ably reinforced in the middle line by the recti, to which may be added the fascia and the fibrous commissure of the linea alba.

The peritoneum proper, I think, offers little resistance to the intra-abdominal pressure, and yet I believe it plays an important rôle in the prevention and promotion of ventral hernia. In the natural state the parietal peritoneum offers a perfectly smooth, slippery surface to the visceral peritoneum, and this, in connection with the rotund shape of the abdomen, is a valuable safeguard against hernia.

There is no direct and continued impact of the viscera against the walls, for with every varying movement of the body, however slight, they glance and glide away from each other, thus ever shifting and equalizing the pressure. I will not recount the manner in which the different layers of muscle, with their fibers running in different directions, contribute to this end by insensible contractions, and how they reinforce each other in meeting the assaults from within.

Now, anything that roughens the peritoneum acts as a predisposing cause of hernia. Adhesions to the same membrane are of like import, though in the main conservative. The intra-abdominal pressure becomes concentrated and persistent, and the result is a final yielding of the parietes. Another factor is the cicatricial tissue in the line of incision. I am aware of the fact that some of the operations now in vogue for the radical cure of hernia are based upon the formation of a cicatricial plug at the site of hernial protrusion.

It is a very common belief that a tissue is resistant and stable in proportion to its density. This, however, I believe to be an error. Cicatricial tissue will not compare in point of endurance with healthy, natural tissues. It has not the vitality. It is not momentarily renewed and strengthened as they are. It is just in those cases in which suppuration and healing by granulation take place that we reap the harvest of herniæ after our abdominal work. Another factor, and one of the most important, is the retraction and contraction of the abdominal muscles. They continually draw away from the weakest point, enlarging the gap and still further weakening the vulnerable part. The woman with relaxed abdominal walls, of which the muscular tonus is diminished, is, according to my experience, much less susceptible to hernia than she of undiminished muscular vigor.

After the hernia is formed and the parietal resistance removed, the viscera become dislocated, with elongation of their ligamentous attachments and prolapse of the mesentery. The places previously occupied by the organs contract, and there is no more room for them in the cavity proper; they lack the support of their natural attachments. Thus by degrees everything becomes changed, and the difficulties multiply. For these reasons the operative treatment of ventral hernia must often be an unrequited task, and this probably accounts for the general apathy and paucity of literature on the subject.

In the light of the foregoing, the ideal treatment of ventral hernia of this form would be to enter the peritoneal cavity, break up adhesions, lop off redundancies, restore the healthy peritoneum, and so manage the superimposed structures as to bring them as nearly as possible into their natural state and relations, and secure healing by first intention to avoid the weakness of scar-tissue. In a large proportion of cases this is impracticable, and the difficulty is enhanced by the altered state of the abdominal cavity and its contents.

What we most need is an operation that will give a fair measure of success, and which is sufficiently simple and easy of execution to secure its general adoption. It should also be comparatively safe. The invasion of the peritoneal cavity, especially when adhesions exist, must therefore be avoided; for, aside from the extreme difficulty attending the section, when bowel and omentum are glued to the attenuated abdominal wall, rendered more difficult still by the flabbiness incidental to a hernial pouch, the length of time necessary to, and at times the im-

[1] Read in the Section of Obstetrics and Diseases of Women of the American Medical Association, at Detroit, June, 1892.

possibility of, liberating the adhesions, render the procedure extremely unsafe.

The next most desirable method would be to cut down to and deflect the fascia to one side of the median line, dissect up the muscular structures from the median line outward on both sides, interdigitate or overlap these from opposite sides, and suture them in their relative positions. The object of this method is to avoid the weakness and defects attendant on a direct line of union by interposing a series of muscular, fascial, and cutaneous structures between the cavity and the outer world on the median line.

This, while theoretically plausible, is practically impossible; for, it must be remembered, that even in the normal state it is next to impossible to curtail the abdominal cavity to such an extent as to allow the overlapping of muscles and fascia from opposite sides, and now, that the capacity of the cavity has been reduced, the difficulty is even greater. "Yes, but," it will be said, "there is a redundancy in the pouch that will easily admit of this." I think that on careful examination very little muscular structure will be found at this point, and such as may be found will be so attenuated, wide-meshed, and wanting in contractile properties as to be of little avail. The fascia might be of some benefit, but the skin is too extensile and wanting in elasticity to be of lasting service.

The technique that I have adopted, and which seems to me the most practical, the easiest of execution, the safest and the most lasting in its results, will be recognized as an old-time friend in a new garb. It simply consists in the denudation of an elliptical surface, the turning in of redundant tissue, and the union by suture, and, as an operation for cystocele, has been in use many years.

Before describing the operation in detail, however, it will be necessary to give the preliminary treatment. If the case be one of long standing, with prolapsed viscera and a contracted abdominal cavity, the patient will need a preparatory treatment of several weeks' duration. The object of this treatment is to restore, in a measure, the lost abdominal capacity and to strengthen, if possible, the visceral supports. The bowels must be assiduously attended to; the general health looked after; massage used to improve the muscular tonus, and the patient kept recumbent. At stated intervals, say once or twice a day, the patient is placed in the Trendelenburg position, to distend the upper abdomen and to restore the organs to their natural positions. The length of time that this position will be maintained will depend on the easy endurance of the patient. Flatulence, if it exists, should be combated by the proper remedies, of which turpentine is one of the best. For several days preceding the operation measures directed to securing asepsis should be resorted to, not only in the way of general baths, but the cutaneous surface over and around the hernial patch should receive the most painstaking care. In view of the exceeding difficulty attending this part of the work, on account of the lax and wrinkled condition of the skin, I have directed that the patient be placed on her feet during the scrubbing, in order that the skin might be put upon the stretch and the wrinkles effaced. The researches of Kelly have shown how extremely difficult it is to dislodge the germs that ensconce themselves between the layers of epithelium, and hence the extra care. As healing by first intention is the *sine qua non* to a successful issue, it will be seen that the preliminary cleansing process cannot be too rigid. All this having been attended to, and the utmost care being observed in the preparation of the instruments, appliances, and the persons of the operator and assistants, the case is ready.

OPERATION.—With a curved sound depress the pouch over the median line, carrying the instrument in toward the cavity, and with tenacula approximate the sides, being careful not to use traction, as there must be no tension. The line of contact will be found to be elliptical. This may be blazed, or marked out with iodine or ink. Now, with scissors and tenaculum, follow this around, laying bare the fascia and working toward the center, until an inch or more is exposed. This leaves an elliptical island surrounded by an elliptical furrow. It is well to freshen the outer margin of the skin of the island. If the area is not too large I am in the habit of denuding the whole. Bleeding vessels being secured, the blood and débris cleared away, and the parts washed with an antiseptic solution, a small rubber drainage-tube is slipped over the sound and the parts depressed as before. The tube must be long enough to project at either extremity. The use of the tube is sometimes dispensed with, especially if the entire surface has been pared. A continuous catgut suture is now run along the inner aspect of the denuded strip and made to include the skin-margin of the central island. A second and a third row are superimposed until the gap is closed and the parts brought into nice apposition. The probe is now withdrawn, leaving the drainage-tube in place. Aristol is sprinkled over the wound and a heavy layer of gauze over this.

Strips of rubber adhesive plaster, to which tapes have been attached, are now applied to the sides of the abdomen well down, and the tapes tied over the dressings in the median line. Over this is placed a thick layer of absorbent cotton, held in place by a four-tailed flannel bandage. The patient is put to bed and treated just as after abdominal section, the object being to prevent vomiting and the accumulation of intestinal flatus.

ORIGINAL LECTURE.

ENDOCARDITIS—ANEMIA—AORTIC STENOSIS —ENLARGED SPLEEN.

BY JOSEPH M. PATTON, M.D.,
PROFESSOR OF INTERNAL MEDICINE IN THE CHICAGO POLYCLINIC.

ENDOCARDITIS.

GENTLEMEN: This woman is twenty-eight years old and married. She came to this clinic about a year ago, complaining of pain in the cardiac region, some dyspnea, and slight cough. She had a rapid, irregular pulse; the heart's action was excited and forcible. She had no elevation of temperature. There was slight edema about the ankles. The urine was scanty and high-colored; it had a specific gravity of about 1028, and contained no albumin and no casts. At that time she presented a faint mitral regurgitant murmur, and a diagnosis was made of endocarditis affecting the mitral valve. She was placed on sodium bromide and small doses of tincture of opium; she was also given some potassium acetate. Under this treatment the pain in the cardiac region disappeared, the pulse became more regular, and the edema about the ankles disappeared. She was then placed on tonic treatment and has continued to improve until the present time. She gave us a rheumatic history, having had rheumatism at various times in early life; during the present winter she has had rheumatism of various sets of muscles, for which she has had sodium salicylate. To-day you will notice that her pulse is regular and a little forcible; the impulse of the heart is a little to the left and very slightly displaced downward. She does not complain of pain at the present time or of cough, and says that her heart gives her no trouble. The forcible action of the heart at present is probably due to excitement in coming before the class. Over the mitral area you will notice a very slight prolongation of the first sound, which is carried indistinctly toward the left. The endocarditis from which she was suffering when she first appeared in this clinic has subsided, leaving of course some trouble with the mitral valve, which is the cause of the murmur we hear to-day. The right side of the heart has compensated fully for this condition, so that she does not suffer at all from trouble with her heart. We will again place her on sodium salicylate and small doses of potassium iodide. The latter is given both as an alterative and as a direct cardiac tonic. According to recent investigations potassium iodide has a twofold therapeutic action: it causes temporary contraction of the small vessels, followed by dilatation, involving the coronary circulation as well as the general circulation. We may thus expect to improve the nutrition of the heart-muscle by increasing the amount of blood furnished to the organ itself.

ANEMIA WITH ENDOCARDIAL MURMURS.

This young woman is nineteen years old and is a sister of the one of whom we have just been speaking. She came to the clinic about three months ago complaining of amenorrhea. She was given some uterine tonic at that time, which stimulated her menstrual function, and she menstruated regularly the following month. She comes back to-day saying that she has not menstruated during the last two months. You will notice that her skin is pale and sallow; the mucous membranes are somewhat blanched; the cornea is unusually clear and white. The skin does not have the greenish-yellow hue of chlorosis; nor are the mucous membranes as white as they appear in that disease. The patient says that her appetite is not good; her bowels are regular; she does not suffer from headache, but occasionally has slight spells of dizziness. Her pulse is rapid, rather small and compressible. On looking at her chest the action of the heart is seen to be rapid and somewhat forcible, probably as a result of excitement. The apex-beat is in the normal situation. On listening to her heart you will observe a soft, blowing systolic murmur, heard over an area bounded by the upper border of the third rib above, the lower border of the fourth interspace below, the left edge of the sternum on the right, and a parallel line on the left about two inches from the edge of the sternum. This murmur is heard best at the base of the heart, but can be readily distinguished all over the area described. You will also hear along the course of the subclavian vessels a loud blowing systolic murmur, much harsher than the one heard over the heart. This murmur is heard only on deep inspiration, and is heard as long as the lung is held fully expanded, disappearing with the beginning of expiration. You can also hear the venous hum, the so-called *bruit de diable* of the French, over the jugular vein, although it is not very well marked in this case.

Now, these murmurs are hemic in character, and due to the watery condition of the blood. This is a case of simple anemia. Anemia is often found in young girls at about the age of puberty. Among the Bohemians and Poles especially we often find well-marked cases of chlorosis at this period, and they are nearly always associated with amenorrhea. Among the Americans we find more cases of simple anemia, and they may be associated with amenorrhea or menorrhagia. We find then, in this case, sufficient reason for the amenorrhea. These various hemic murmurs, both endocardial and vascular, which occur in these conditions, are valuable as confirmatory evidence of an anemic condition. We will often hear a vascular murmur when no cardiac murmur can be detected, and the vascular murmurs, that is, those produced in the subclavian vessels, afford a more reliable diagnostic indication of the watery condition of the blood than does the venous hum in the jugular. These murmurs in the subclavian vessels have been supposed to be due to pleuritic adhesions, making traction on the costal pleura. I do not think that this is the real cause. They are probably due to pressure on the subclavian vessels by the expanded lung, which changes the anatomic relations of the part, making some portion of the artery narrower in caliber, because, when present in cases in which the expansion of the two apices is not equal, they will be found best marked on that side that shows best expansion, and not on that side on which we might have reason to suppose that there could be pleuritic adhesions. The cardiac murmur in this case is one of the most distinct endocardial murmurs that you may expect to hear.

The diagnosis from organic murmurs is important, because when a hemic murmur exists in young persons that have presented evidences of rheumatism, such as those transient pains commonly called "growing pains,"

and often associated in early life with a rapid, forcible, and irritable heart, they may readily be mistaken as rheumatic.

Intra-cardiac hemic murmurs are always systolic and softer than cardiac murmurs of organic origin, with the exception of occasional cases of mitral regurgitant murmurs. They are heard loudest at the base of the heart, over only the cardiac area, and are not transmitted as organic murmurs may be transmitted. The hemic murmur, for instance, is heard plainly to the left of the sternum; it is not transmitted, although it may be distinguished as far dowa as the point of apex-contact, but not plainly. It is not heard at all outside of the mitral area or to the right of the sternum.

Now, the treatment of this case must necessarily be directed to the improvement of the condition of the blood, the specific gravity of which is lessened and the hemoglobin diminished; the corpuscles are smaller, and the same number of corpuscles will occupy a much smaller space than they would in healthy blood. When this condition results from want of corpuscular development, it is termed anematosis. When due to degeneration of the corpuscles, it is called hemophthisis. The blood-mass may be diminished; to this the term oligemia is applied. The best medicines to improve the condition of the blood are the various iron tonics, and the most efficient is the fresh carbonate of iron. This is made by using equal proportions of iron sulphate and pure potassium carbonate with a little sugar and enough acacia to make a mass. It is preferable to the sugar-coated pill. A fifth of a grain of nux vomica may be added to this pill to improve the innervation of the vasomotor system, which is always at fault, as the vascular tension is always low in cases of this kind. As much of this medicine should be administered as the patient can take. Four or five grains should be given after every meal; the dose may be increased if the stomach bears it well. For the gastric trouble that is often associated with this condition you may give a few grains of sodium bromide with a little pepsin, with some powdered charcoal if there is fermentation and eructations of gas. Constipation will be nicely relieved by the employment of cascara sagrada two or three times a day.

We will place this young woman on this line of treatment, and as soon as her nutrition is improved we can confidently predict that her menstruation will become regular. In order to stimulate the menstrual function, it is well to administer some such remedy as she was given before, at about the time that she would expect to menstruate—any reliable preparation of viburnum.

SLIGHT AORTIC STENOSIS OF LONG STANDING, FOLLOWED BY OVERSTRAIN OF THE HEART AND DILATATION.

This young woman is twenty-three years old and married. She states that she had rheumatism when she was ten years old, but not since that time. She comes to the clinic on account of a cough that she has had for two months. She also says that she has recently had slight pains in the region of her heart, with some palpitation, and occasionally slight dizziness. On examination of her lungs we find nothing to account for her cough. Her heart is beating rapidly. The action is forcible; the area of cardiac impulse is increased. On percussion, the area of dulness extends to the nipple line; it is also displaced downward about half an inch. On auscultation in the mitral area we hear a faint, soft systolic murmur transmitted only a short distance to the left. Over the aortic valves there is a slight prolongation of the first sound, indicating that the aortic valves are somewhat stenotic. Now, this stenosis at the aortic valve is probably of long standing and due to the rheumatism that she had in early life. This condition would account for the moderate hypertrophy of the left ventricle and for the slight displacement of the heart downward. At the present time, however, we find the left ventricle dilated. The dilatation is relatively greater than the slight hypertrophy that has taken place; we must seek a cause for this dilatation. It is evident that the dilatation is not the result of degeneration of the heart-muscle, because the muscle, as you will observe by the character of the heart's action and the quality of the first sound, is in good condition.

The patient tells us that she is a dancer by profession and has followed this occupation for a number of years, for several hours every day, and that lately some of the figure-dancing has been especially hard, and that she has noticed that it was more difficult for her to do than formerly. This would explain the cause of the dilatation. Given a heart slightly hypertrophied on account of moderate aortic stenosis, we have a condition in which compensation has been effected, and which would probably have given her no trouble if she had not been subjected to overstrain; but the violent action of the heart necessary in the active exercise of dancing raised the intra-ventricular pressure to such an extent that the cavities of the heart were dilated, the mitral ring was slightly stretched, and she has a slight relative mitral regurgitation, which explains the production of the mitral murmur now present. It also explains why we should have a dilated ventricle with so good a heart-muscle. The condition would come under the head of idiopathic enlargement of the heart as described by Fraentzel. Fraentzel, Leyden, and Schott have described cases of cardiac dilatation resulting from acute overstrain of the heart.

Now, in treating this case, the first thing to do is to relieve the heart of any such strain. The woman must stop her dancing. If she does this the condition will diminish of itself, the dilatation will subside, and the heart may be able to perform all the labor required of it. To quiet the action of the heart and the nervous arhythmia present in this case we will give her ten grains of sodium bromide, with half a drop of tincture of aconite, three or four times a day. She will also be given some general tonics; her diet will be regulated; and if she will give up her dancing we can safely assure her improvement.

This young woman is also a dancer. For the past three or four months she has been troubled with palpitation of the heart, some dyspnea, and some dizziness. On examination we find the action of the heart more forcible than in the other patient. The limit of dulness is not so much displaced to the left, and it is also very slightly displaced downward. There are no abnormal valvular sounds to be heard in this case, and the signs are simply those of moderate hypertrophy on the left side. This hypertrophy in so young a girl, in the ab-

sence of any valvular lesions or any abnormal condition of the vascular tension, in the absence of any evidence of disease of the kidneys or any of the organs, can only be explained by the nature of her work. The enlargement of the heart, due to the strain of dancing, in this case is one simply of hypertrophy. In the other there was an already constricting valve at the aortic orifice which modified the conditions, and therefore we would have dilatation under the same conditions as we get simple hypertrophy in this instance.

These cases are interesting as showing the abnormal conditions of the heart that may devolop simply as a result of overstrain.

This girl should also be made to change her occupation. She should be placed on the same treatment as the other case, and although one is a case of hypertrophy, and the other one of combined hypertrophy and dilatation, the treatment would be the same in both instances, because the heart-muscle is good and we have virtually the same conditions to counteract.

ENLARGED SPLEEN.

This man is forty years old and a farm-laborer by occupation. He appeared at the clinic about three months ago in substantially the same condition as you see him now, presenting no history of interest, except that of enlargement of the abdomen. He had never been sick in his life, has never had any form of malarial fever, and knows of no reason why his abdomen should have enlarged in this way.

On looking at him you will observe an enlargement on the left side of the abdomen, occupying the left hypochondrium, extending down into the left inguinal region and over to the right of the umbilicus. On palpation you find this region filled with a tumor that is hard, smooth, doughy; it extends from about the ninth rib down to within two inches of the pubes and more than an inch to the right of the navel. As you place him on his back and draw up the knees, you find that you can palpate a large tumor. It is sharply rounded and shelving; the point of the tumor is directed downward and toward the right inguinal region. To the right of and just above the umbilicus you will find a V-shaped notch in the abdomen, which tells you at once that you have a spleen to deal with, this being the hilus of the organ and being characteristic of the splenic outline.

Now, you will remember that the spleen is enlarged in various conditions. It may be enlarged in acute exanthematous diseases; it may be enlarged in malarial fevers; you may have a chronic hypertrophy of the spleen as a result of malarial disease; you may have it enlarged from cysts, hydatids, carcinoma, tuberculosis, and other conditions. This evidently belongs to the chronic enlargements of the spleen, such as we find resulting from chronic malarial poisoning or from leukocythemia. The differential diagnosis of these conditions can only be made by examination of the blood. We place a specimen of this man's blood under the microscope and you will readily recognize, without any special effort at accurate measurement of the number of corpuscles, that the white corpuscles are relatively greatly increased in number. You notice that they are large and granular and that their outline is not very distinct. This tells us that we have a case of leukocythemia.

You will remember that there are three principal varieties of leukocythemia—the splenic form, of which this is an instance, and in which the enlargement of the spleen is the main symptom; then we have the lymphatic form, in which the lymphatic glands in the various parts of the body are enlarged, with or without marked enlargement of the spleen; lastly, we have the so-called myelogenic form, in which the marrow of the long bones is involved, being transformed into a purulold condition and increased in quantity.

Leukocythemia may present a variety of symptoms. There may be fever, irregular chills, disturbance of digestion, diarrhea alternating with constipation, petechial eruptions all over the body, hemorrhages into the serous cavities, such as the tunica vaginalis testis, the peritoneum, the pericardium, pleura, or the arachnoid cavities of the brain. There is also a liability to cerebral hemorrhage, from degeneration of the coats of the vessels. These various symptoms are more likely to be present in the lymphatic and myelogenic forms of leukocythemia than in the splenic form.

The duration of the disease is estimated at from three months to three years. The splenic variety, when presenting no fever or no digestive disturbance, may last much longer. Patients may die suddenly from cerebral hemorrhage.

The treatment is not satisfactory. We have as yet no recoveries of this condition recorded. Transfusions of blood have been partially successful. Extirpation of the spleen has totally failed. Intra-parenchymatous injections of ergot, carbolic acid, sclerotinic acid, and other substances have been largely practised by Mosler and others, with the effect of causing partial contraction of the spleen, but no cures have been effected.

In this case we have been following the established treatment of iron, arsenic, and quinine. The man has been taking ten drops of iron citro-muriate, five drops of solution of potassium arseniate, and five grains of quinine sulphate, three times a day. His spleen is smaller now than when he first presented himself at the clinic. He tells us that he can now eat a comfortable meal without any disturbance of his stomach, which he could not do previously on account of the pressure on his stomach from the enlarged spleen; then, too, the tension of the abdominal walls is not as great and the tumor can be more readily palpated than at that time. Without promising much in this instance, we feel warranted in continuing this line of treatment, as the man is more comfortable and the spleen somewhat smaller in size; but the prognosis is still serious. These cases sometimes improve temporarily, and die suddenly from cerebral hemorrhage or some unknown cause.

CLINICAL MEMORANDA.

GENERAL RESPIRATORY TUBERCULOSIS:

Pulmonary, Laryngeal, Nasal.

BY CHARLES P. GRAYSON, M.D.,

ASSISTANT PHYSICIAN, DEPARTMENT OF DISEASES OF THE THROAT AND NOSE, HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

THE interest in the case herewith reported lies not only in the uncommonly wide distribution of the disease, but in certain methods of treatment adopted, and their

results. The lungs were the parts primarily and most extensively involved, but it was for the consecutive laryngeal and nasal lesions that the patient came under the partial supervision of the Throat Department, and it is of these latter that I shall speak with the greater detail.

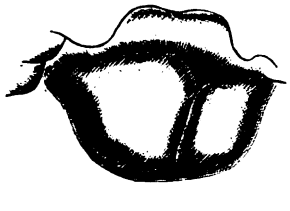
To dispose as briefly as possible of the family and previous personal history, I quote from the notes of the resident, Dr. Furness, who kindly permits me to do so:

"George McV., aged thirty-two years; machinist; English. Both parents, a brother and a sister, all died of phthisis. Until within a year prior to his admission to hospital, a fairly healthy man. At that time a cough, which had troubled him more or less for some months, became suddenly aggravated. Flesh and strength were rapidly lost and the voice became weak and hoarse. Six months ago, external swelling of the throat appeared; the voice was entirely lost, and swallowing became both difficult and painful." Physical examination disclosed extensive disease of both lungs, further advanced in the right than in the left, the right upper lobe containing cavities and the lower lobes showing numerous areas of softening.

The patient's first visit to the Throat Department was made December 19th. He was brought down from the ward in a wheel-chair and presented a most pitiful spectacle. Emaciation was extreme. Cough was frequent and painful, quite aphonic, and only slightly productive. Voice was extinct. Aside from his general appearance, the most prominent objective symptom was dyspnea. Loud inspiratory stridor was present, all the accessory respiratory muscles being in play, and the nasal alæ widely dilated. Externally, the prominence of the larynx was increased to almost double its normal size, and seemed even larger from the advanced wasting of the neighboring cervical tissues. There were, in addition, some redness and edema of the overlying skin, with considerable tenderness on pressure.

Laryngoscopic examination. The appearance of the epiglottis departed but slightly from the normal. There was moderate swelling, due apparently to simple edema, and a number of dilated veins coursed over the anterior surface. Below this, however, the larynx presented a picture of advanced tuberculous disease, from which death by asphyxia seemed imminent. The accompanying sketch may, perhaps, convey a clearer idea of its menacing condition than could a verbal description.

FIG. 1.



It will be seen how very small an aperture remained for purposes of respiration. The whole infiltrated mass was immovable, forced inspiration, or attempted phonation producing no perceptible alteration in the mirrored image. As to coloring, the typical grayish pallor of tuberculous disease predominated, but it was splashed here and there by patches of catarrhal hyperemia. All of the mucous membrane in sight was still intact, but the absent voice, the agony attending deglutition, and the degree of general swelling, spoke but too plainly of active destruction going on below the parts shown in the glass. The previously mentioned redness and edema of the skin, with the marked tenderness on pressure, were suggestive of implication of the cartilages.

Above the larynx the pharyngeal and oral mucous membranes were characteristically anemic.

The nose. On both sides anterior rhinoscopy disclosed the same anemic condition of the lining mucosa as was present in the lower portions of the respiratory tract. In addition, however, on the left side, just within the margin of the vestibule, an ulcer was discovered on the septum. This lesion corresponded closely in appearance with the classical descriptions of the tuberculous ulcer in this region. There was no encircling inflammatory areola; the edges were flush with the contiguous tissue and passed into a slightly depressed, caseating center. The ulcer seemed entirely non-secreting, only a few particles of necrotic tissue being found upon its surface. In shape it was irregularly oval, its longer diameter measuring 11 mm.

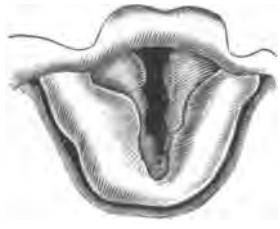
The management of the case, so far as it related to the pulmonary disease and the patient's general condition, was in other hands, and will not be considered here. That portion of the treatment, however, directed specially to the lesions involving the throat and nose, claims notice because of its having included the use of mercuric chloride in watery solution as an agent with which to check the accompanying destructive ulceration in these regions.

At the time when local treatment was first instituted, the larynx presented in an eminent degree the condition termed by Gottstein "pseudo-edema"—the enormous swelling being due, not to a simple inflammatory exudation into the meshes of the submucosa, but to the specific tuberculous infiltration of the tissues generally. The scattered superficial catarrh, no doubt, played a minor part in adding to the swelling, and constricting still further the already dangerously diminished space for the entrance of air, and it was to the subjugation of this that the earlier treatment was directed. This consisted of but little more than routine measures, viz., the external application of ice-water compresses, inhalations every few hours of steam medicated with compound tincture of benzoin, thorough cleansing of the larynx once daily by the use of a mild alkaline spray, followed by spraying with a 4 per cent. solution of cocaine, and this again by generous insufflations of a powder composed of iodoform, bismuth, tannic acid, and acacia. It is scarcely necessary to add that the diet during this time was entirely liquid and bland.

By the close of the first week there was much cause for satisfaction. The simple catarrh had subsided, and with it enough of the swelling to greatly relieve the dyspnea and to markedly facilitate expectoration. Nutrition was improved, considerable strength regained, and the patient abandoned his wheel-chair and came for his daily treatment unassisted. At this point, an intervening Sunday causing the lapse of forty-eight instead of twenty-four hours without treatment, seemed to give the invading bacilli the opportunity of resuming active hostilities. The morning of December 28th found the laryngeal

condition almost, if not quite, as grave as at the first examination. The previous treatment was renewed and continued without change, but the examination of the next day showed that the progress of the disease was not again to be arrested without the aid of some powerful ally. Small superficial erosions on the left ary-epiglottic fold heralded the commencement of general disintegration of the infiltrated tissues. Additional erosions soon appeared on the right fold also, and on both sides these rapidly coalesced, deepened, and passed into active ulceration. In the face of this exhibition of weakness upon the part of iodoform, it was determined to substitute for it a solution of mercuric chloride. The strength first employed was 1 : 500. As a sort of control-experiment this was applied for the first two days to one side only, the right, while the iodoform was continued upon the left. This period, brief as it was, proved quite long enough to exhibit a marked difference in the behavior of the two ulcerating folds under the two methods of treatment. The right had undergone easily-perceptible improvement by the end of the second day, while the ulceration on the left side seemed to have been quite unaffected in its progress by the daily coating of iodoform. Subsequently, therefore, the bichloride solution was applied to both sides. The cotton-wool tufts used for this purpose were made to carry a just sufficient quantity of the medicament and no more. Thus the action of the solution was carefully limited to the cocainized ulcerations, and no excess was allowed to jeopardize the integrity of still intact membrane or to expose the patient to the risk of the toxic effects of the drug. For almost two weeks the condition of the larynx underwent steady improvement. Destruction was checked, vigorous granulations made their appearance, and as these underwent transformation into cicatricial tissue, considerable contraction of the swollen folds occurred, with coincident widening of the respiratory aperture and proportionately diminished dyspnea. At this time the disease-process seeming so well under control, another Sunday was allowed to pass without treatment. Before the day was over, however, the patient, through some carelessness of his own, became chilled, the weakened throat felt the effects of the shock most keenly, and the ensuing morning found us con-

FIG. 2.



fronted by a second relapse. Appearances were again so menacing that, rather than risk having all that had been accomplished quickly undone, the strength of the bichloride solution was doubled, making it 1 : 250. Once more it proved wholly efficient, the threatened recommencement of disintegration was averted, and from this time until the patient's death the larynx was kept entirely neutral so far as its exerting any influence in hastening that result was concerned. On February 4th, three days previously to death, this second sketch was made. Comparison with Fig. 1 will demonstrate with sufficient clearness, it is hoped, what the treatment had accomplished.

Autopsy. The larynx being removed, examination revealed the following condition: In spite of post-mortem shrinkage, it was, as a whole, much larger than normal. But little remained of the vocal bands—these, together with the lower thirds of the ventricular bands, having been almost completely destroyed. The upper portions of the ventricular bands were merged above into the thickened ary-epiglottic folds, and these latter bore upon their upper surfaces smooth, well-organized cicatrices, free from vegetative proliferations, and showing but slight traces of the recent active ulceration. Death was due to asthenia, the advanced destruction of the lungs found fully confirming the results of physical examination.

A few words in conclusion as to the nasal lesion. The reported cases of genuine tuberculous ulceration of the nasal cavities are comparatively few (under thirty) in number. I much regret that, no microscopic examination of the contents of this ulcer having been made, the diagnosis may be fairly questioned. If, however, in connection with the characteristic local appearances present, the case be considered in its entirety, together with the fact that all of the other probable or possible causes of such ulceration could be definitely excluded, I think that but little doubt can reasonably be entertained as to its tuberculous nature.

Regarding its treatment: Its location made it so easy of access that the galvano-cautery promptly suggested itself as the speediest means for its eradication. This is a measure that has been successfully adopted and warmly advocated by several Continental authorities. During the first week, however, the patient's general condition forbade an immediate resort to this measure, and the same local applications were made here as to the larynx. The result was largely negative. The ulcer became cleaner and, in so far, improved in appearance, but at the end of ten days it had not undergone the least contraction, and no disposition to the formation of healthy granulations was manifest. Simultaneously with the first use of mercuric chloride to the larynx, it was applied here. The ulcer being first thoroughly curetted, the 1 : 500 solution was pressed firmly into the resulting excavation. Healing was much more prompt than in the more inferiorly situated disease, the comparatively sheltered position of this lesion and its freedom from the constant disturbance to which the larynx was subjected, enabling it to outstrip the latter in their common course toward cure.

A CALCULUS IN WHARTON'S DUCT.

BY J. THORINGTON, M.D.,
OF PHILADELPHIA.

G. S. A., a shoemaker, thirty-two years old, a German by birth, presented himself at the Throat Clinic of Jefferson Medical College Hospital, complaining of "sore-mouth" that had existed for two years.

Two years previously, while at work, he was, without apparent cause, seized with acute pain in the floor of the

mouth, to the right side of the tongue; this pain gradually extended to the right side of the face and neck, becoming so severe after three days that he could not sleep, and the parts became so swollen that it was impossible to swallow solid food. In this condition he sought medical aid, and after two days' use of gargles and washes, a thick, clear fluid began to flow from the mouth, and convalescence was rapid, except that, ever since this attack, he has had a daily paroxysm of pain at the original focus, coming on as a rule at about dinner-time.

Examination revealed a prominence on the floor of the mouth, between the tongue and the teeth of the right side; this prominence was not sufficient, however, to raise the tongue, and was only noticed when the patient elevated or retracted this organ.

At about a quarter of an inch to the right of the middle of the frenum linguæ, a small whitish opening could be seen, slightly elevated above the mucous membrane, the patient explaining and demonstrating that through this opening, by digital pressure upward, inward, and forward to the inside of the ramus of the jaw, a fine stream of clear fluid could be ejected through the open mouth, to the left, a distance of a foot or more. It was in this way that the patient had been getting relief from his daily attack of pain during the preceding two years.

On palpation with the right index finger in the mouth, and the fingers of the left hand under the jaw, a hard, elongated tumor, painful on pressure, could be felt, extending from within a quarter of an inch of the frenum on the right side, back between the teeth and the tongue, a distance of an inch. This tumor was larger anteriorly and diminished in size posteriorly.

Probing the opening previously mentioned, a hard grating substance could be distinctly felt.

After applying a 4 per cent. solution of cocaine, an incision half an inch in length was made over the tumor, extending backward from the point of opening. A calculus immediately presented, and with the aid of forceps was extracted. A probe was then introduced into the wound without any difficulty, passed backward, slightly downward and outward a distance of two and a half inches; no other calculi being detected in the duct or gland, the cavity was cleansed with a ten-volume solution of hydrogen dioxide, then dried with absorbent cotton, and finally swabbed out with the following solution:

℞.—Potassii iodid.	gr. xxx.
Tinct. iodi	f℥j.
Glycerin.	f℥ij.
Aq. dest. . . . . q. s.	f℥jss.

This solution was applied daily for three days, and the wound was permitted to heal.

A week later the patient reported that he was well, and inspection showed the wound to have closed. The surface of the calculus was rough. The mass weighed twenty-one grains. It measured an inch in length, an inch in circumference at the larger, and three-eighths of an inch at the smaller extremity. The general shape of the calculus was not unlike that of a large date-seed.

Careful analysis showed the calculus to be composed of carbonate and phosphate of lime.

In presenting this case I wish especially to note:

1st. The history of sudden onset, which suggests the strong probability of the nucleus of this calculus having its origin in the submaxillary gland, and being washed forward by the salivary secretion, and as not having its origin in the duct; and

2d. The importance at all times of a careful examination. This patient before coming to the clinic had visited three physicians; two told him it was "nothing," and the third said he had a ranula; none, however, had made a digital examination or probed the opening.

1630 ARCH STREET.

MEDICAL PROGRESS.

Proctectomy for Carcinoma of the Rectum. — BROWN (*Lancet*, 1892, 3588, p. 1235) reports the case of a robust, healthy-looking man, fifty-two years old, who presented symptoms of carcinoma of the rectum, and was losing much blood with every movement of the bowel. The growth was within reach of examination, but too high to allow of an ordinary proctectomy. The bowel was freely movable within the pelvis, and the finger could be passed beyond the disease. Left lumbar colotomy was performed, and five weeks later, the artificial anus being well established and acting freely, the lower segment of the intestine (between the opening in the colon and the anus) was twice daily for two days thoroughly washed with large quantities of a solution of carbolic acid, 1:80, until the escaping fluid was free from fecal taint. A silver catheter was passed into the bladder and held in position throughout the whole of the subsequent operation. The patient was then turned well over on the right side, and the thighs were flexed on the abdomen. A square flap, four inches in length and four in width, including all of the soft tissues, was raised from the posterior surface of the sacrum and turned upward, the free edge being two inches above the anus and the attached margin being opposite the third segment of the sacrum. The sacrum was then sawn transversely at the level of its fourth segment, the lateral attachments below, as far as the tip of the coccyx, severed, and this bone "flap" turned downward. The hemorrhage was free, but was controlled by "clip" forceps and sponge-pressure, a few of the larger vessels being tied. A finger was next introduced through the anus, well up into the rectum, and the gut gradually freed from its attachments by means of scissors. On attempting to draw the bowel out of the wound it was found that the disease extended higher than the cut edge of the sacrum, so that an additional three-fourths of an inch of bone was removed. The rectum was then divided above the internal sphincter, drawn out of the wound, and its posterior wall slit up beyond the limits of the growth. The bowel was now seized with large pedicle-forceps above the level of the growth and cut away with scissors, the line of removal being half an inch above the upper limit of the disease. The free extremity of the rectum was stitched in the upper right angle of the wound, and plugged with a large sponge. The wound was freely irrigated and filled with iodoform-gauze. The sacrum was then replaced, and the skin-flap turned down and secured by sutures. Free drainage was provided for. The wound was dressed with dry wool, and firm pressure was applied by means of a flannel roller. There was little shock. Apparently the peritoneal cavity had not been opened. A few days

after the operation the opening in the colon ceased to act, in consequence of the disappearance of the "spur" from traction on the bowel. As a result, fecal matter passed into the rectum, the wound became foul, and symptoms of septic intoxication appeared. The wound in the bowel was reopened, and the colon drawn out and divided. A catheter had to be employed as long as the patient was kept on his side. He passed urine without assistance as soon as he got out of bed. His general health was well maintained, and he suffered but little pain.

Nervous Hepatic Colic.—At the recent Congress for Internal Medicine held at Leipzig, FÜRBRINGER (*Suppl. Centralbl. f. klin. Medicin*, No. 25, 1892, p. 46) defines the characteristics of nervous hepatic colic. The attack closely simulates that of calculous colic, but the pain is most intense in the region of the liver. Nervous hepatic colic is a symptom of irritable weakness of the nervous system, and occurs especially in young, neurasthenic, and hysterical patients, often in association with other visceral neuralgias, such as pleurodynia, heart-pain, nephralgia, oöphoralgia. At times the knee-jerk is greatly exaggerated. The exciting factor in an attack is usually not apparent, and is rarely constituted by errors in diet, over-activity, anger, menstruation. The attacks frequently present a certain periodicity of recurrence. Icterus and swelling of the liver are wanting. Tenderness over the liver is always present. Although the affection may last for many years, it never leads to inflammatory conditions. The best therapeutic results are to be obtained by anti-neurasthenic treatment. Nervous hepatic colic may be associated with peritoneal adhesions of the liver to adjacent organs (usually in association with cholelithiasis).

Foreign Body in the Air-Passages for Five Months.—WILSON (*Glasgow Medical Journal*, July, 1892, p. 24,) has reported the case of a man, twenty-eight years old, in which a whistle, made of a circular piece of tin, perforated at the center and folded on itself, measuring at its base one and a half inches, and transversely three-quarters of an inch, was inspired into the trachea. Respiration was somewhat obstructed, and a peculiar metallic wheeze was heard on sudden expiration. Examination, however, failed to detect the situation of the foreign body. For five months the man suffered comparatively little inconvenience. There was dyspnea on exertion, and occasionally a sense of discomfort at the level of the upper portion of the sternum. On cough, the body could be felt to move. Sleep was disturbed by a sense of fear. One morning the man awoke with a tickling sensation in the throat, and on coughing the whistle was ejected.

THERAPEUTIC NOTES.

Trional and Tetronal.—As the result of a considerable experience at the psychiatric clinic at Jena, SCHAEFER (*Berliner klin. Wochenschr.*, No. 29, 1892, p. 724), concludes that trional and tetronal possess a hypnotic and sedative influence, tetronal being the more active sedative. The therapeutic effects appear in ten or twenty minutes after administration. Trional is indicated as a safe and promptly-acting hypnotic in cases of insomnia, of the various forms of neurasthenia, of functional psychoses and of organic disease of the brain. It fails in cases of morphinism or cocainism, or in which physical pain is a prominent symptom. Tetronal is indicated in cases of psychoses in which motor unrest of moderate degree prevents sleep. Neither is indicated as a sedative in cases of marked motor and mental excitement. From fifteen to thirty grains constitute an active dose; single doses of forty-five and sixty grains and daily doses of from ninety grains to two drams may safely be given. The drug is best given at bedtime, dissolved in milk or in wine. Other than slight irritation of the stomach and intestines, no bad effects were observed. Secondary manifestations were observed in a small number of cases. No unpleasant symptoms attended the withdrawal of the remedy after it had been given for some time; neither was a tolerance to the drug established.

Resuscitation after Drowning.—At a meeting of the French Academy of Medicine, LABORDE (*Münchener medicin. Wochenschrift*, 1892, No. 28, p. 501) reported the resuscitation from drowning of two cases by separating the jaws and alternately strongly drawing the tongue forward and pushing it backward. The strong traction on the root of the tongue exerts a reflex influence upon the respiratory apparatus, and may be made to conform with the respiratory rhythm.

For Scabies.—

℞.—Sulphuris sublimat. } . . āā ℥ij.
Olei cadini }
Cretæ preparat. . . . . ℥ijss.
Saponis viridis } . . . āā ℥j.
Adipis }
M. et ft. ung.
S.—Apply topically. HEBRA.

Strontium Bromide for Vomiting.—CORONEDI (*Practitioner*, July, 1892, p. 24) recommends the employment of strontium bromide for the relief of vomiting of nervous, or of gastric origin, or dependent upon pregnancy, and reports a number of illustrative cases. He prefers to give the drug in solid form, because of its deliquescence, in doses of fifteen grains, kept in tightly-corked vials, twice or four times a day.

For Parenchymatous Keratitis and Corneal Opacities.—

℞.—Unguent. hydrargyri . . . ℥j.
Lanolini . . . . . ℥j.
Vaselini . . . . . ℥ij.—M.
Ft. unguent.
S.—Apply topically.

—*Centralbl. f. Augenheilk.*; *Wiener med. Presse*, 1892, No. 16.

Creasote for Scrophulosis.—Based upon the result of his experience, SOMMERBRODT (*Berliner. klin. Wochenschr.*, No. 26, 1892, p. 641) renews his original recommendation of the employment of creasote in the treatment of scrophulosis. In children, the initial dose may be a drop or two, gradually increased, and always given after meals.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, AUGUST 13, 1892.

INVOLUNTARY NEWSPAPER DOCTORS.

NOT every man whose name and doings get into the newspapers is a sneak advertiser. A reporter may slip into the clinical amphitheater or be brought thither by an unwise student-friend. He will describe what he sees and mention the name of the teacher whose work he has witnessed. But the report will indicate its source by its inaccuracies and its curious and *naïve* phraseology, just as the dictated report betrays its source by accurate technical terminology. Then, again, the personal character of some men is sufficient evidence that accidental newspaper notice is not of their seeking.

A distinguished teacher of this city, a member of the faculty of a prominent college, lately sent us a clipping for our scrap-book, containing a report of an operation done by him at the college clinic. The accompanying letter assured us that the notice was extremely distasteful to him. This assurance was entirely unnecessary. In the first place, we knew the man, as the community and the profession know and honor him. It is a simple impossibility to connect his name with the shadow of a shade of unworthy suspicion. In the second place, the terminology of the report was unmistakably and ludicrously that of the reporter; it was graphic in its very blunders. In the third place, the few lines in which the story of a rare and really great exhibition of surgical skill and daring was told, the absence of other allusion to the operator than his mere name, and the prominence given to the names of assistants, formed a striking contrast to the columns of detail concerning patient, operation, and operator which the true and tried newspaper doctor would have had inserted.

We have lately learned of an even more annoying experience that happened to a member of the same faculty. This gentleman was invited by a classmate to a consultation in a neighboring city. To his extreme disgust he soon after received a number of newspaper clippings stating that "Professor ——— had been in the city in consultation with Drs. ——— and ———, whose advertisements would be found in the adjoining columns."

The question at once arises, How is one to guard against such occurrences? It is impossible. But the whole tenor of one's life and conduct must be such that his character is an immediate proof that he has had no part in the newspaper publication. We have quoted instances in which well-earned character does furnish such proof. How many could we not quote, in which character, equally well-earned, proves just the opposite?

THE "PACIFIC MEDICAL JOURNAL" AND THE QUACKS.

THE *Pacific Medical Journal* is to be congratulated on "the enemies it has made." It has bravely spoken the truth concerning the official action of the State Board of Medical Examiners of California; and concerning the shameless quackery of certain medical men of San Francisco, some of whom, it seems, are members of the County Medical Society and State Medical Society, and some of whom occupy prominent official positions in the public service.

We thought that certain "eminent practitioners," residing less than a thousand miles from the marble tower that is to be topped by a statue of WILLIAM PENN, understood to perfection the art of "working the newspaper racket," but we confess that the methods of their brethren of the Pacific Coast are, if less sly, apparently better calculated to attract the nimble dollar. The *Evening Telegraph*, of this city, has frequently asked why physicians should not be allowed to openly advertise, and perhaps the experience of that journal warrants the question. It would certainly be more decent and more business-

like on the part of medical men to use the advertising columns of newspapers for frank cards at regular rates, than to sponge upon the reading-columns for the transparent kind of news one sometimes finds there; yet we are sure that even that member of the *Telegraph's* editorial staff who is most severe upon the "old fogy doctors" that despise advertisers and will not consult with quacks, and do not believe that quinine gets into the bones, or that it is honest to pretend one thing and to practise another, would alter his opinion and the tone of his comments if he would but read the sketches of medical men in the *Daily Report* of San Francisco.

The point is simply this: A tradesman advertises his wares, but a professional man has only himself to advertise. The impropriety of such self-advertisement is obvious. We very much doubt that the editor of the *Telegraph*, or any other sane journalist, would be willing to intrust his own life, or that of any of his dear ones, to an advertising doctor.

The quack is strong, but his rule must sooner or later come to an end. A little more courage on the part of the medical press will end it sooner. Meanwhile, thanks and much power to the brave "S." of the *Pacific Medical Journal.*

AN EXHIBIT OF ROAD-MAKING AT THE COLUMBIAN EXPOSITION.

COLONEL ALBERT A. POPE, of Boston, is earnestly endeavoring to secure "a comprehensive exhibit of roads, their construction and maintenance, at the World's Columbian Exposition."

It has been alleged that bicycle manufacturers have a keen business interest in the matter, and it is doubtless true that good roads will help the bicycle business. So will they help every other business.

No class of men can have a greater interest in this question than physicians. To the discomforts and trials of a life not too full of sweetness, the wretched condition of city streets and country roads adds its full quota. Americans do many things well, and a few things badly; and among the things that they do worst is road-making. If COLONEL POPE can succeed in his effort to have at the Columbian Exposition an educational exhibit that shall attract prominent attention, and shall show what has been done elsewhere and what can be done in this country to secure good roads, he will have performed a substantial public service. The greatest difficulty to be contended with is, of course, the objectionable introduction of partisan politics into the management of public works throughout the country.

The recent exhibit by SECRETARY TRACY of the improvement attained in the navy yards since the principles of Civil Service Reform were introduced into their management is an illustration of what can be done in road-making when that shall likewise have been delivered from the control of the practical politicians and "the boys."

Of course, good roads cannot be made under any system until the principles of road-making are generally understood, and the proposed exhibit at the Chicagoan World's Fair will be an important factor in the diffusion of the knowledge of these principles. As good citizens, for the benefit of the public, and as physicians, for their own benefit and that of their patients, we would urge our readers to further the movement by every means in their power. COLONEL POPE suggests that letters to local newspapers and to members of Congress will be of material assistance.

REVIEWS.

CARDIAC OUTLINES FOR CLINICAL CLERKS AND PRACTITIONERS, AND FIRST PRINCIPLES IN THE PHYSICAL EXAMINATION OF THE HEART FOR THE BEGINNER. By WILLIAM EWART, M.D. Cantab., F.R.C.P., Physician to St. George's Hospital, etc. With sixty-two illustrations. 8vo, pp. x, 165. New York and London: G. P. Putnam's Sons, 1892.

THE study of physical diagnosis may be made to appear extremely difficult, or it may be reduced to the ulmost simplicity. Of course, a thorough knowledge of visceral anatomy is fundamentally necessary. In addition, the result will be governed by the method in which the subject is approached. The book before us affords adequate evidence of the correctness of the position here taken, and of the aid that well-written books may render in the study of practical subjects. Not only is that much of the subject with which the book has to deal presented in a clear and concise manner, but it is presented with so much interest that one is loath to put the volume aside, and one wonders why more books of the same kind are not brought forth, or rather wishes that they were. Not a little of the merit of the work belongs to the excellent and accurate illustrations. We can commend it most heartily to all that appreciate the value of careful clinical examination, and who desire to be fully and accurately and intelligently informed on a subject of incalculable aid and an indispensable adjunct in diagnosis. The merest summary of the contents of this excellent little work would carry us beyond the limits of this review. We cannot do better than refer

those interested to the original. It should go far toward stimulating the systematic practice of making careful clinical records.

A TREATISE ON BRIGHT'S DISEASE OF THE KIDNEYS: ITS PATHOLOGY, DIAGNOSIS, AND TREATMENT. WITH CHAPTERS ON THE ANATOMY OF THE KIDNEYS, ALBUMINURIA, AND THE URINARY SECRETIONS. By HENRY B. MILLARD, M.A., M.D., Fellow of the Academy of Medicine of New York, etc. With numerous original illustrations. Third edition, revised, enlarged. 8vo, pp. xviii, 322. New York: William Wood & Co., 1892.

THE author states that since the appearance of the second edition he has devoted much time to retracing former experience and adding new; and that as a result of prolonged new investigation and observation he has changed many of his former opinions and conclusions, especially with reference to the existence of what is known "as physiological albuminuria." He states in Chapter VIII, which is devoted to this subject, that the experience of Capitan and Chateaubourg, upon which he formerly relied, must now be thrown out of consideration, on account of the defects in their methods of testing, which do not exclude the possibility of mistaking mucin for albumin.

Permanent albuminuria, even if intermittent, according to Millard's latest experience, usually implies, in some way, impaired health or some latent pathologic condition.

The book maintains its reputation as a careful, systematic study of its subject, and, while we do not necessarily agree with all of the author's opinions, we must admire the clearness with which he expresses his views, and commend the generally practical character of his advice as to treatment.

USES OF WATER IN MODERN MEDICINE. By SIMON BARUCH, M.D., Attending Physician to the Manhattan General Hospital and New York Juvenile Asylum, etc. Two volumes. Pp. xv, 115; pp. viii, 228. Detroit: George S. Davis, 1892.

IN a short compass, the author, who is an acknowledged authority upon the subject, gives the rationale and the principal methods of hydro-therapeutics. While we cannot fully indorse the somewhat enthusiastic statements made, we do believe that this important subject and these important means of cure have been greatly neglected by English-speaking physicians, and Dr. Baruch deserves grateful recognition for his efforts to secure a more extended knowledge and more appreciative use of the powers of water in medical practice.

If he had done nothing else than call attention to the merits of the Brand treatment of typhoid fever he would have rendered a valuable service to the community and to the profession. We trust that each of our readers will buy and study this little work.

LE RACHITISME. Par J. COMBY, Médecin des Hôpitaux de Paris. (Bibliothèque Médicale. Charcot-Debove.) Paris: Rueff et Cie, 1892.

THIS is a most interesting as well as an attractively bound little volume of 175 pages.

Dr. Comby draws his deductions from a large practice among children. He clearly describes the malnutrition and general dyscrasia of rickets, and the digestive troubles that antedate deformities.

He draws the lines clearly as to congenital rickets, tardy rickets, osteomalacia, and osteoporosis. Very properly, he calls especial attention to the development of the disease during the age of dentition. Ignorance and poverty are the causes, not climate. The descriptions of the resultant bony deformities are good, but he fails to recognize the value of the prevention of these distortions, and he is not enthusiastic upon subsequent correction by surgical and mechanical measures. Osteoclasis is his favorite surgical procedure. Hygienically, good food, good air, salt baths, and cleanliness are the essentials. Calcicum phosphate, cod-liver oil, and phosphorus are valuable adjuncts to hygienic measures.

CORRESPONDENCE.

A UNIQUE MODE OF ADVERTISING.

To the Editor of THE MEDICAL NEWS,

SIR: The subject of this communication is suggested by a memorandum in THE MEDICAL NEWS, entitled "Copies of Advertisements Desired." For some time I have observed a scheme that is becoming more and more prominent, while its participants are multiplying in number and increasing in zeal. I refer to the indorsing of pharmaceutical preparations known as tablet-triturates, compressed tablets, or compressed pills, by prominent members of the profession.

A number of travelling salesmen call on me in the interest of their respective firms; they display their goods in an attractive array, and laud, in mercantile eloquence, the virtue, beauty, solubility, uniformity, and excellence of their wares, manufactured from the purest drugs, under the supervision of the highest commercial integrity. Preparation after preparation is presented; on examination I read on the label the name of a prominent professor of some university or medical school.

The agent insists on my purchasing the preparation because Professor —— uses it in the hospital. After declining to order the article, another bottle is produced, bearing the name of Doctor ——, who is the Chief Physician in some State Institution or Hospital.

In this characteristic manner a sale may be effected by an argument based not on the merits of the preparation, but on the name of the doctor that indorses the label, as a stamp of approval.

I am in a position to know that many of these preparations are bought and prescribed, not because of their intrinsic value, but by reason of their high indorsement, and that they are used under the name of the indorser.

Recently, during a consultation, the attending physician informed me that the patient was taking Professor ——'s triturates. Not being acquainted with the preparation under that name, I inquired what they contained, and to my astonishment the physician did not know all of the ingredients, but assured me that it was the proper thing to give, because Professor —— recommended it. Many are thus influenced to use drugs not suited to the case, and with the therapeutical value of which they are unacquainted.

It is not my object to argue in favor of or against these preparations. I only claim that, to use drugs under such a title is unscientific, while this mode of advertising is a departure from ethical consistency, if not a direct violation of the code.

Furthermore, that its influence is deleterious no one can question, and that great responsibility lies with those who engage in it.

We do not blame the trade for resorting to a measure that is so profitable, but we are forced to censure those who suffer their names to appear in every pharmaceutical catalogue, to be used as commercial instruments by anyone who chooses to appropriate them.

These compounds should not be sold over the signatures of men that occupy high places, men that we are to regard as masters in the profession, and those whose names grace the pages of medical literature.

I regret to state that I have in my possession a list of over seventy names of this superior type, all of which appear in pharmaceutical catalogues.

If these gentlemen are not aware of the fact that their names and reputations are thus misused they should be informed of the truth; and, on the other hand, if they are cognizant of the fact, and tolerate it, they are fostering an evil the influence of which is far-reaching and more potent than they imagine.

In the *Times and Register*, vol. xxiii, p. 245, I am pleased to note that Professor Da Costa repudiates the authorship of one of these preparations. It is known as "Da Costa's Heart Tonic." Professor Da Costa takes the proper position in this matter, and indicates a mode by which this evil can be combated.

H. F. SLIFER, M.D.

NORTH WALES, PA,

THE METAMORPHOSIS OF MICROÖRGANISMS.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS (May 7, 1892) William C. Braislin, of Brooklyn, N. Y., makes the statement that over fifteen years ago Professor Tyndall said, in regard to the propagation of bacteria: "No change of any isolated organism into another organism is ever observed."

Is this now an accepted fact by bacteriologists, or is there not yet some doubt about it? Has it not been proved by Naegeli that the bacterium that causes lactic-acid fermentation in milk may be changed by cultivating it in extract of meat and sugar, so that it will no longer produce a lactic but an ammoniacal decomposition in milk. And is it not the conclusion of H. C. Wood and Formad that the micrococci found in diphtheria resemble those found on furred tongues in all respects, except in their greater tendency to grow, and when cultivated successfully they lose their contagious powers and grow less rapidly. Do not these authors, therefore, consider that the common micrococcus by cultivation can be converted into a rapidly growing diphtheritic micrococcus, and by change of cultivation reverts to the common type? Most truly,

W. H. BARR.

AGRICULTURAL COLLEGE, MISS.

The foregoing letter was submitted to Dr. Abbott, who kindly replies as follows:

The statement of Tyndall related more to the constancy of morphology than to the general biologic peculiarities of bacteria, and subsequent observations have demonstrated its accuracy. There is no evidence in support of the opinion that a bacterium belonging to the family of rod-shaped organisms, the bacilli, can ever alter its shape and become constantly spherical or spiral; *i.e.*, a micrococcus or a spirillum, and *vice versâ*. The morphology of members of these different groups is constant. With the physiologic activities of the bacteria, however, the conditions are different, for an organism that, under a given set of circumstances, is concerned in the manufacture of one chemical product may, with altered surroundings, such, for example, as a different kind of nutrition, presence or absence of oxygen, alkaline or acid reaction of the medium in which it is growing, etc., generate substances of an entirely different nature chemically. In the light of more recent studies upon diphtheria there is no reason for considering either in whole or detail the work of Wood and Formad, and it is not probable that the authors themselves would to-day insist upon the acceptation of the statement made by them upon this subject so long ago. The work of Wood and Formad has never received confirmation since the time of its publication.

A. C. ABBOTT, M.D.,
First Assistant, Laboratory of Hygiene, University of Pennsylvania, Phila.

THE ADDITION OF A FIFTH RULE TO THE FOUR OF KOCH.

To the Editor of THE MEDICAL NEWS,

DEAR SIR: In the very valuable contribution which Dr. Sidney Martin, in the Gulstonian Lectures, has made to chemical pathology, of which you have given a very complete editorial review in your issue of July 9th, the learned author states that to the four rules of Koch there should now be added a fifth, namely, that "The chemical poisons must be obtained from the tissues in the natural disease, and products with a similar physiological action proved to be formed by the primary infective agents when grown outside the body."

In this connection I think that I am justified in calling attention to the following quotation (*Journal of the American Medical Association*, vol. xiii, p. 831), taken from a paper read by myself at the Newport meeting of the American Medical Association in June, 1889: "I think that it is now time for us to supplement the rules of Koch with the following, which should be insisted upon in those cases in which the lower animals are not susceptible to the action of the germ. Before any microorganism can be considered the true and sufficient cause of a given disease, it must be shown that the chemical products of that germ are capable of producing the characteristic symptoms and lesions of that disease in an acute form."

The same statement is reported in the second edition of *Ptomaïnes and Leucomaïnes* (Vaughan and Novy), 1891, pages 97–98.

In the discussion which followed the reading of my paper at Newport one of the most renowned of American bacteriologists (see page 836, vol. xii, *Journal of the American Medical Association*) protested against my proposed rule.

Now, three years later, Dr. Martin formulates the same rule. If the principle of this rule is right, America deserves the credit of first having formulated it.

Respectfully, VICTOR C. VAUGHAN.

MICHIGAN UNIVERSITY.

A SIMPLE ENDOSCOPE.

To the Editor of THE MEDICAL NEWS,

SIR: Some time since I was consulted by a young man afflicted with considerable urethral irritation, the result of a previous gonorrhea. There was no discharge, only considerable pain at the commencement of the urination, referred to the head of the penis. He had applied to various physicians and had tried various remedies without avail; the last physician had been passing bougies. As he had pretty well made the rounds of treatment, I decided to try galvanism. Accordingly, I made two applications a week by means of a urethral electrode of a sensible current, and in the course of three weeks had the irritation very much lessened; but by none of the many methods subsequently pursued could I entirely remove the pain. Finally, I succeeded by the employment of a little apparatus, which I shall endeavor to describe, and which I trust may be of service to others who may be similarly situated. Confident that there were spots of inflamed mucous membrane along the urethral tract which I had heretofore been unable to reach satisfactorily, and which had kept up this long-standing irritation, I felt the need of an endoscope with which to find them. This, however, was an instrument which I did not possess, and indeed an instrument which I fancy few do possess, except those who make a specialty of genito-urinary diseases.

Accordingly, I constructed an instrument that answered my purpose admirably. I made it of an ordinary glass "straw," such as is used for imbibing lemonade and kindred beverages, though any like medium-sized glass tube, with a round smooth extremity, would do as well. Heating this about four inches from one extremity in the flame of an alcohol-lamp, I broke off the longer portion and at the same time sealed the smaller. Holding the same part again in the flame, and at the same time gently blowing through the other end, I gradually expanded the fusing extremity into a sort of bulb. The top of this bulb I broke off, smoothing the jagged edges by slightly melting them in the flame. I now had a sort of glass funnel expanded at one extremity, and of the same caliber for three inches of its length. When next my patient came, applying a little glycerin on the outside of this homely "endoscope," I found it could easily be slipped its full length into the urethra; and by means of an ordinary head-mirror I could throw a light down to the termination of the instrument, and plainly see the condition of the mucous membrane at any point by simply slipping the glass-tube up and down. Discovering, as I expected, a number of patches of inflamed mucous membrane, I was enabled by this means to make application of various stimulating and astringent substances to these particular spots, applying even as strong as a 40 per cent. solution of silver nitrate, and in a few weeks had his long-standing irritation entirely removed. Respectfully,

ERNEST B. SANGREE.

744 SOUTH FIFTEENTH ST.

CYSTOSCOPY.

To the Editor of THE MEDICAL NEWS,

SIR: In vain have I looked through the literature to learn if anyone has succeeded in viewing the whole interior of the bladder at once. The end can be accomplished by an exceedingly simple method: All that is necessary is to put the woman in such a position that the contents of the abdomen gravitate toward the diaphragm and insert Simon's well-known urethral speculum. It is possible that occasionally failure will occur. If the intra-abdominal pressure is great, as in very fat women, etc., I place the hips on the upper edge of a lounge in dorsal decubitus. I shall not dwell upon the advantages and increased possibilities of surgical action resulting from the use of the endoscope, but I expect that as good results will some day be obtained in males as are now secured in females. It seems to me that after a straight tube is introduced into the bladder with the patient in the position indicated, and a strong light thrown in, a small mirror (fastened to a wire at an angle) could be introduced, and thus the whole bladder be surveyed by turning the mirror in various directions. The shorter the tube and the greater the caliber, the better the view that ought to be had. The common urethral endoscopes are too long for this purpose, as the penis can be crowded together a great deal. Not possessing the opportunities of the post-mortem room, I would suggest that those who have such opportunities might apply the idea here expressed. The present armamentarium (Nitze, etc.) is needlessly complicated, and brings into view at one time smaller areas than would be seen in the device that I propose. If this model of a laryngeal mirror were convex, still larger areas could be seen at one time, but, of course, in reduced size. All endoscopes at present in use require the bladder to be filled with water. The method here outlined, dispensing, as it does, with the use of all fluids, would certainly command a better view of the interior of the bladder.

Respectfully, MARCELL HARTWIG.

BROOKLYN, N. Y.

NEWS ITEMS.

The American Orthopedic Association will hold its sixth annual meeting at the New York Academy of Medicine, September 20, 21, and 22, 1892. The following program has been arranged:

First Day—September 20th.

The President's Address, by Dr. Benjamin Lee, Phila.

"Report of a Case of Spontaneous Dislocation of the Hip-joint," by Dr. B. E. McKenzie, Toronto.

"Adduction following Fracture of the Neck of the Thigh bone," by Dr. H. Hodgen, St. Louis.

"Osteitis Deformans; with a Report of Two Cases," by Dr. Henry Ling Taylor, New York.

"Lateral Dislocation at the Knee-joint Due to Local Disease, or Paralysis, with Especial Reference to Treatment," by Dr. T. Halsted Myers, New York.

"Plaster-of-Paris Orthopedics," by Dr. A. J. Steele, St. Louis.

"The Orthopedic Treatment of Infantile Spinal Paralysis," by Dr. John Ridlon, Chicago.

"A Report of Two Years' Operative Work in the

Hospital for the Ruptured and Crippled," by Dr. V. P. Gibney, New York.

"Lateral Curvature," by Dr. E. H. Bradford, Boston.

"The Classification of Hip-disease," by Dr. R. W. Lovett, Boston.

"A Study of Some of the Problems in the Mechanical Treatment of Hip-joint Disease," by Dr. Newton M. Shaffer, New York.

"Experiments Demonstrating the Etiology of the Various Deformities in Hip-joint Disease," by Dr. A. M. Phelps, New York.

"Some Remarks on the Etiology of Club-foot," by Dr. Samuel Ketch, New York; discussion to be opened by Dr. J. K. Young, Philadelphia.

"At What Age Shall the First Treatment of Congenital Club-foot be Instituted?" by Dr. H. Augustus Wilson, Philadelphia; discussion to be opened by Dr. C. C. Foster, Cambridge.

Second Day—September 21st.

"The Non-operative Treatment of Congenital Club-foot," by Dr. A. B. Judson, New York.

"The Non-operative Treatment of Club-foot in Young Infants," by Dr. R. W. Lovett, Boston.

"Manual Replacement in the Treatment of Club-foot," by Dr. Ap Morgan Vance, Louisville.

"The Treatment of Club-foot by Continuous Leverage," by Dr. Henry Ling Taylor, New York.

"The Place of Traction in the Treatment of Club-foot," by Dr. Newton M. Shaffer, New York.

"The Use of the Wrench in the Treatment of Club-foot," by Mr. Robert Jones, Liverpool; discussion to be opened by Dr. A. M. Phelps, New York, and Dr. Roswell Park, Buffalo.

"The Operative Treatment of Club-foot," by Dr. De Forest Willard, Philadelphia.

"Analysis of Bone Operations in Club-foot, especially Enucleation of the Astragalus," by Dr. V. P. Gibney, New York.

"Treatment of Resistant Club-foot," by Dr. E. H. Bradford, Boston; discussion to be opened by Dr. L. A. Sayre and Dr. J. B. Bryant, New York.

Third Day—September 22d.

"An Easy Way to hold the Operated-on Club-foot in the Corrected Position while the Plaster-of-Paris Splint Sets," by Dr. H. M. Sherman, San Francisco.

"Means for the Prevention of Relapse in the Treatment of Club-foot," by Dr. B. E. McKenzie, Toronto.

"Necessity for Mechanical Treatment after Operations for Club-foot," by Dr. W. R. Townsend, New York.

"A Case of Club-foot with Rare Complications," by Dr. A. J. Steele, St. Louis.

Paper on Club-foot; title not announced; by Dr. T. Halsted Myers, New York.

Paper on Pott's Disease; title not announced; by Dr. R. H. Sayre, New York.

Paper; title not announced; by Dr. H. L. Burrell, Boston.

Paper; title not announced; by Dr. J. C. Schapps, Brooklyn.

The American Social Science Association will hold its general meeting of 1892 at Saratoga, from August 29th to September 2d.

In the Department of Education, the Secretary, Dr. Louise Fiske Bryson, of New York, will read a report on "Education as a Therapeutic Measure."

Dr. Isaac N. Kerlin, of Elwyn, Pa., will present an address on "The Training of the Mentally Defective in Childhood."

In the Department of Health, the Secretary of the department, Dr. W. D. Granger, will read a report on the "Work of the Health Department since its Organization."

Dr. Matthew D. Field, of New York, will read a paper on "The Examination and Commitment of the Public Insane in New York City."

Dr. Ralph L. Parsons, of Sing Sing, N. Y., will read a paper on "Voluntary Commitment of the Insane to Asylums."

Dr. Henry Ling Taylor, of New York, will read a paper on "American Children Hygienically Considered."

Dr. W. W. Keen, of Philadelphia, will read a paper on "The Modern Surgery of the Brain."

Dr. Frederick Peterson, of New York, will read a paper on "The Old and the New Phrenology."

In the Department of Social Economy, Dr. Annie S. Daniel, of New York, will read a paper on "Conditions Observed by a Dispensary Physician in New York in regard to the Sweating System."

BOOKS AND PAMPHLETS RECEIVED.

Expert Witnesses. By J. T. Eskridge, M.D. Reprint, 1892.

Review of the Preventive Measures taken against Kak'ke in the Imperial Navy, Tokyo.

The Operative Treatment of Goiter. By J. Collins Warren, M.D. Reprint, 1892.

Transactions of the American Dermatological Association. Official Report of the Proceedings. By George Thomas Jackson, M.D. New York, 1891.

The Treatment of Tuberculosis of Bones and Joints by Parenchymatous and Intra-articular Injections. By Nicholas Senn, Ph.D., M.D. Reprint, 1892.

Diseases of Women. A Manual of Non-surgical Gynecology, Designed Especially for the Use of Students and General Practitioners. By F. H. Davenport, A.B., M.D. Second Edition, Revised and Enlarged. Illustrated. Philadelphia: Lea Bros. & Co., 1892.

Fifty-second Annual Announcement of the Medical Department of the University of the City of New York, Session of 1892–93. New York, 1892.

Annual Announcement and Catalogue of the College of Physicians of Baltimore, Md., 1892.

Nephrotomy for Calculous Pyelitis. By W. W. Keen, M.D. Reprint, 1892.

Arterio-venous Aneurism of the Common Carotid Artery, etc. By W. W. Keen, M.D. Reprint, 1892.

Resection of the Liver. By W. W. Keen, M D. Reprint, 1892.

The Effect of Fluids on the Strength of Catgut. By D. Braden Kyle, M.D. Reprint, 1892.

An Inquiry into the Causes Producing Cerebral Injuries in the Newborn. By J. Madison Taylor, M.D. Reprint, 1892.

Announcement of Gross Medical College, of Denver, Col. Denver: Press of Medical Times, 1892.

Twenty-eighth Report of the Trustees of the Boston City Hospital. Boston: Rockwell & Churchill, 1892.

Uses of Water in Modern Medicine. By Simon Baruch, M.D. Vol. II. (Physician's Leisure Library.) Detroit, Mich.: George S. Davis, 1892.

Materialism and Modern Physiology of the Nervous System. By William H. Thomson, M.D., LL.D. New York: G. P. Putnam's Sons, 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, AUGUST 20, 1892. No. 8.

ORIGINAL ARTICLES.

DIPHTHERITIC CONJUNCTIVITIS: REPORT OF TWO CASES, WITH THE BACTERIOLOGIC STUDY OF THE FALSE MEMBRANE.[1]

BY HIRAM WOODS, M.D.,
OF BALTIMORE, MD.

UNDER the terms membranous, croupous, and diphtheritic conjunctivitis there has been described a variety of affections of the conjunctiva, the essential feature being the formation of a pseudo-membrane. The disease may be trivial, getting well under little or no treatment; or it may be the most dangerous of all of the conjunctival diseases, and destroy the eye, despite all one can do.

An attempt has been made to divide the pseudo-membranous inflammations of the conjunctiva into two classes, according to the situation of the false membrane. Thus, a plastic deposit sometimes forms on the palpebral conjunctiva during the course of a catarrhal or purulent conjunctivitis. Again, with only the symptoms of simple conjunctivitis, and without any purulency, a similar membrane may form. It is usually attached feebly to the conjunctiva and can be wiped off. Again, it may be more firmly adherent. When it is removed, the subjacent conjunctiva is found succulent and vascular, with, possibly, little bleeding spots marking the points of attachment of the false membrane. The ocular conjunctiva is not involved, and the lids are not indurated. To this form of the affection the name "croupous" or "membranous" has been applied by some authors, including Alfred von Graefe, Saemisch, Schmidt-Rimpler, Swanzy, and Macnamara. "The pathological process," says Bull in Soelberg-Wells's *Treatise*, "here consists mainly in the deposit of an albuminous exudation, probably fibrin, upon the surface of the inflamed conjunctiva, which deposit rapidly coagulates on exposure to the air, and thus assumes the form of a membrane. This deposit contains cells which have made their exit from the mucous membrane, and upon the number of these cells depend more or less the firmness and density of this membrane. . . . . Micrococci have sometimes been found in the secretion of croupous conjunctivitis, but not always."

A second variety of pseudo-membranous conjunctivitis is seen, to which the term "diphtheritic" has been applied. Here, early in the disease, the eyelids become swollen, hard, and, to all appearances, bloodless. It is always difficult and often impossible to evert them. There is either no discharge at all from the mucous surface, or it is watery. The palpebral and ocular conjuntiva is covered with a thick gray membrane. If an attempt be made to strip it off, it is found firmly adherent. If incised, the conjunctiva and lid-tissues are found infiltrated with this dense plastic material. The incision will be bloodless. This condition persists for several days, when purulent secretion sets in as the second stage. The lids become softer and the swelling disappears. The third and last stage is that of cicatricial contraction in the conjunctiva and lid-tissues. It will be seen that in the course of diphtheritic conjunctivitis, as described, the cornea is subjected, during the first stage, to the dangers of plastic infiltration and strangulation from the pressure on the vessels of the ocular conjunctiva; during the second, to the dangers of purulent ophthalmia; and, if it survive all this, it may eventually be made opaque by the cicatrization of the lids.

To summarize: the classical distinction between croupous or membranous, and diphtheritic conjunctivitis is this: In the former a false membrane forms *on* the conjunctiva, is limited to the palpebral portion, and when stripped off leaves the mucous membrane vascular. Diphtheritic inflammation invades both the palpebral and ocular mucous membrane, cannot be stripped off, infiltrates the tissue of the lids, and renders them hard, swollen, and bloodless. If the term diphtheritic were here used etymologically, and conveyed the idea only of a membranous formation, this distinction, though an arbitrary one, would suffice for clinical purposes. But there is inseparably associated with the word "diphtheritic" the idea of diphtheria; and "diphtheritic conjunctivitis" gives the impression of being a manifestation upon the ocular mucous membrane of this disease. Here one meets two facts that render a distinction, based upon the presence or absence of lid-infiltration, untenable, at least in the opinion of many, among them such authors as Nettleship, Jüler, Bull, and Noyes. These facts are (1) the production of a pseudo-membranous conjunctivitis, with hard lid-infiltration, by agents *not diphtheritic;* and (2) the large amount of clinical evidence that pseudo-membranous conjunctivitis occurs as a complication or

[1] Read before the Medical and Chirurgical Faculty of Maryland, April 29, 1892.

starting-point of diphtheria, the lid-infiltration being often absent. Soelberg-Wells, Nettleship, and others record the occurrence of lid-infiltration—clinically, diphtheritic conjunctivitis—from inoculations with gonorrheal pus, the too free use of caustics, and traumatism. Noyes mentions a case of his own "in a boy, ten years of age, operated upon for strabismus; the dense, gray, plastic infiltration extended from the wound over the ocular and then over the palpebral surfaces, with the typical characteristics of stiff and bloodless structures." One of the cases I shall presently report presented just such appearance, but there was no possibility of a diphtheritic origin.

Among the proofs that pseudo-membranous conjunctivitis occurs as a manifestation of diphtheria are the following: it has been found to prevail epidemically with diphtheria; to often precede faucial diphtheria, or to occur during its course; to be, apparently, a source of contagion for diphtheria to other persons, or to be contracted from another having diphtheria. Many of the cases of diphtheritic conjunctivitis occur either in connection with pseudo-membranous angina or alone, after the infectious diseases, scarlet fever and measles—so-called secondary diphtheria. Bacteriologic investigations have, I know, recently shown that many of these secondary diphtherias are not of the same nature as primary diphtheria, and should not be so termed. Still, until the demonstration of the Loeffler bacillus as the cause of primary diphtheria, they were so called, and are, I believe, clinically indistinguishable from the primary disease.

Concerning the occurrence of diphtheria of the conjunctiva, without lid-infiltration, Noyes records two fatal cases of diphtheria, which were first reported by Nettleship, in both of which the first manifestation of the disease was upon the conjunctiva, from which it spread to the nose and throat. There was never the lid-infiltration thought to be the diagnostic feature of diphtheritic conjunctivitis. It seems, then, impossible to separate croupous and diphtheritic conjunctivitis by objective appearances. Noyes proposes the term "plastic conjunctivitis" for all pseudo-membranous ophthalmias, irrespective of lid-infiltration, save those in which constitutional sysmptoms appear. These should be called "diphtheritic." It would seem more exact to limit the term to those cases occurring either alone, or in connection with pseudo-membranous angina, in which the Loeffler bacillus is found. It is doubtful, however, if this is practicable. So far as we know at present, the presence or absence of the bacillus diphtheriæ in plastic infiltration of the lids would affect treatment not at all, and prognosis very little. Add to this the difficulties of a bacteriologic examination, and it is probable that the adoption of Dr. Noyes's suggestion is the nearest approach to exactness that can be expected.

There is very little to say about treatment. The most important thing is not to use astringents during the first stage—that of plastic infiltration. They can only do harm. This is about the only point in the treatment of the first stage upon which there is a consensus of opinion. One finds the same thing here that is found in other intractable diseases—the suggestion of a host of remedies. Cold and antisepsis seem to meet with favor most generally. I fear, however, that the following from Soelberg-Wells comes near the truth: "We have, unfortunately, but little control over the disease during the first period." During the second stage—that of purulent secretion—the principles that govern the treatment of purulent conjunctivitis will hold.

I have seen four cases of diphtheritic conjunctivitis. It is a very rare disease. Two occurred in the private practice of Professor Chisolm, who kindly allowed me to examine them.

One was in a girl, sixteen or seventeen years old. Only one eye was affected. There was board-like infiltration of the lids and conjunctiva. The eye was lost. There was diphtheria in the house at the time, but the conjunctivitis was the only evidence of diphtheria in this girl.

Professor Chisolm's other case was seen at the Presbyterian Eye and Ear Hospital two years ago. An old gentleman had undergone cataract-extraction. For a week his case progressed smoothly. Then a slight catarrhal conjunctivitis set in. A weak solution of silver nitrate was used once a day, and the eye was kept clean. Suddenly the lids became enormously swollen in the course of two or three days. A membrane appeared on the palpebral and ocular conjunctiva, infiltrating the lid-tissues, and the cornea sloughed. There had been no exposure to diphtheria. Professor Chisolm tells me that he sent a piece of the pseudo-membrane to Professor Welch, who pronounced it non-diphtheritic.

Both of my cases occurred in the practice of Dr. S. W. Seldner, who kindly referred them to me.

CASE I.—On the afternoon of December 20, 1889, Dr. Seldner asked me to see Joe H., six years old. The Doctor himself had been called in only on the same day. From the parents I learned that the child had just recovered from measles. It had not been thought necessary to send for a physician. They had not even kept the boy in bed. For two or three days the child had been complaining of his eyes. Within thirty-six hours, certainly, of the time Dr. Seldner, the family physician, had been sent for, the pain had greatly increased, and the lids had become so swollen as to close the eyes. There had been a little watering. The child was crying from pain when I entered the room. The lids were swollen, hard, and tense. The integument had a waxy appearance, and seemed bloodless, save for

two or three engorged veins. The lightest touch caused intense pain. It was necessary to administer chloroform before the eyes could be examined. This done, the lids were forcibly separated, and partly everted. Complete eversion was impossible. There was no discharge. The conjunctiva of each eye was covered with a thick gray membrane, extending from the lid margins, above and below, over the palpebral membrane, the fornix, and ocular conjunctiva to the cornea, where it abruptly terminated in a hard, slightly elevated ring. A few small ecchymoses were visible on that part of the false membrane covering the lids. By rather vigorous rubbing with a piece of absorbent cotton a few threads of the membrane were detached from the lid. The subjacent surface was dry, hard, and of the same color as the rest of the false membrane. There was a haziness about each cornea, but no point of ulceration. The pupils were moderately contracted—probably from the chloroform. The anterior chambers were of normal depth. After the child had recovered from the anesthetic, I carefully examined his throat and nose, but found no evidence of diphtheria. Ice-compresses, to be kept on constantly, and the hourly washing with a 1:5000 solution of mercuric chloride, were ordered. At the same time, the hazy look of the cornea induced me to put a drop of atropine into each eye. Leeches were considered, but were rejected on account of the boy's feeble condition.

The temperature was elevated, and remained so for several days, the variations being from 100° to 102°. It was generally a fraction over 101°, and varying very little. A mixture of quinine and iron, ordered by Dr. Seldner, was continued. I saw the boy again at 8 P.M. He was easier, and wanted the cold applications all the time. The objective appearances were unchanged, save that each pupil was somewhat dilated by the atropine, the left more so than the right. I now made an incision into the hard, elevated ring around the right cornea, through the conjunctiva, to the sclerotic. There was not a drop of hemorrhage. Cold and the corrosive wash were continued during the night, as well as two instillations of atropine. The next morning (December 21st) the appearance of both lids and globes was practically unchanged. The pupils had not been affected by the atropine, probably on account of poor absorption. There was pain on touching the lids, but otherwise not much suffering. That evening the boy was again in pain, the cold failing to relieve him. Both corneæ were more hazy, but I was not able to find a point of ulceration. Hot applications were now substituted for the ice. I was led to make this change because the cold was no longer relieving the pain, and I thought the corneæ might stand a better chance with hot than with cold applications. Again, I was influenced by a statement of Nettleship's, that when cold fails to benefit, heat may increase the fluid exudation, and determine blood to the lids. Thus, the approach of the blennorrheic stage might be hastened.

The next morning (December 22d) the appearance was unchanged. The corneæ, though hazy, were both transparent. While I was inspecting the right eye, the boy made a sudden movement of the eye upward, possibly increasing the pressure on the weakened cornea. The aqueous gushed out through a pinpoint perforation that was invisible. That evening, as I very gently raised, as well as I could, the hard lid, I found on the left cornea what I at first thought to be a thread of membrane. It proved to be a corneal slough, and when the pressure of the lid was removed, lens and vitreous gushed from the globe.

The next morning (December 23d) I found that the right cornea had sloughed during the night. The blennorrheic stage did not set in for eight days after the eyes were lost. A piece of the false membrane from the right upper lid was taken to Dr. Alexander C. Abbott, then of the Johns Hopkins Hospital. I am unable to say by what methods Dr. Abbott examined the membrane, but his well-known skill leaves no doubt of their thoroughness. He found an abundance of organisms—the streptococci being present in large numbers—but nothing that would justify him in calling the case one of primary conjunctival diphtheria. The Loeffler bacillus was not present.

The family to which this boy belonged consisted of five children, a daughter of seventeen, my patient of six, and three little boys, one and a half, two and a half, and about four years old, respectively. There had been nine children in the family, and three of them had died, some years previously, within a few days of one another, from diphtheria, secondary to scarlet fever. When I was called to see Joe, on December 20th, I found his brother Frank, the baby, suffering from acute otitis media, which had come on, according to the parents, during an attack of measles early in December. On the 24th, Dr. Seldner told me that the two other boys had been taken ill. Both had a slight eruption which we thought scarlatinal. On the 25th, the diagnosis was unmistakable in the four-year-old boy, Albert, while the eruption was indefinite and pale in the child two and a half years old. There was, however, a diphtheritic membrane in this boy's nose. Several times this little fellow nearly strangled, and finally died of exhaustion on January 6, 1890. Albert's case was complicated by a purpuric eruption on the legs, and the formation of blood-crusts about the lips. He seemed, however, in a fair way to get well. On the 5th of January, Frank, the baby, who was said to have had measles early in December, was taken with faucial diphtheria, which rapidly spread to the larynx, and he died on the next day, a few hours after his brother. On the same day (6th) Albert, who, we thought, was convalescent, was taken as Frank had been on the 5th, and died on the 8th. I have always regretted that I did not try to get a bacteriologic examination of the false membranes in these three cases. Neither Dr. Seldner nor I had, however, any doubt of the diagnosis, and I personally did not then appreciate the importance of such examination as I do now.

CASE II.—On March 16th last, Dr. Seldner sent for me to see E. S., a boy, three years old. The child had recovered from measles several days previously, when on March 12th a membrane appeared

in the pharynx. On the following day, membrane was also found in the nose. The father of the child noticed some swelling of the right upper lid on the 15th. On the morning of the 16th he discovered that the left eye was watering and closed. On the afternoon of this day I saw the boy. I found in the pharynx a pseudo-membrane. The nostrils were obstructed, but whether with false membrane or secretion I did not determine. The lids of both eyes were somewhat, but not greatly, swollen. The right lid was easily everted. A gush of tears led me to carefully inspect the cornea, and a small ulcer was found. The conjunctiva was dry, and entirely free from false membrane. The lids of the left eye were harder, and it was more difficult, but not impossible, to evert them. The upper lid was lined with false membrane, from the margin to the fornix. The conjunctiva of the lower lid and globe was not invaded by the membrane. A piece of the false membrane was stripped off, and the conjunctiva found gray and infiltrated. The cornea was clear. Cold and a 1:3000 corrosive solution were ordered. Atropine was also used. Dr. Seldner was treating the boy constitutionally. On the 17th, about twenty-four hours after my first visit, I found both pupils moderately dilated from the atropine, but the swelling and hardness of the lids were unchanged. The pseudo-membrane had extended from the conjunctiva of the left upper lid to that of the globe and lower lid. It had also appeared on the right upper lid. At 2 A.M. on the 18th the boy died of suffocation. The piece of membrane removed on the 16th was taken on the same afternoon to Dr. Simon Flexner, Professor Welch's assistant. I also took Dr. Flexner to see the child on the 17th, and he obtained cultures from the throat and left eye. His report is appended:

"The first cultures were made from the membrane which was brought me in water. The first tube from this consisted almost, if not entirely, of the short bacilli, which I regarded then, and am still inclined to the same idea, as having been extraneous. The succeeding tubes from the membrane showed fewer bacilli, and more organisms, consisting chiefly of chain-cocci. This would seem to indicate that the bacilli were on the surface of the membrane only, and could readily have been derived from the water. As the deeper parts of the membrane were reached, these organisms were not present, at least not in predominating numbers, as they were in the first tube.

"The second examination comprised both the eyes and the throat. In neither of these cases were the bacilli before-mentioned observed, and these cultures were taken directly from the patient. In these the predominating organisms consisted of chain-cocci (streptococci). This was true of the throat and the eyes, and the cover-slips, made directly from the exudation, showed this, as well as the cultures. It is true a bacillus was found, but in small number, and it was excluded from being the diphtheritic bacillus of Loeffler. Its morphology was different, and its culture-properties also.

"I do not see any escape from viewing this process as of streptococcus origin. There were no organisms present which rendered the diagnosis of diphtheria probable; and, on the other hand, we know that there are pseudo-membranes produced in the throat, nose, and eyes in which the streptococcus is the exciting cause. . . . It is very probable that the pseudo-membranous affections of the air-passages and conjunctiva in scarlet fevers are due to a streptococcus."

Were it not for the deaths of the three little brothers of my first patient from what seemed a virulent form of diphtheria, there would be no reason to doubt that the diphtheritic conjunctivitis was of the same origin and nature as in my second case. There are several standpoints from which these cases may be viewed, among them: First. That all were secondary to scarlet fever or measles, and non-diphtheritic. In favor of this one notes (*a*) that pseudo-membranous affections, after infectious diseases, are now known to be usually non-diphtheritic; (*b*) that Dr. Abbott did not find the Loeffler bacillus in the ocular pseudo-membrane; (*c*) that, although Dr. Seldner did not see either of the so-called cases of measles occurring in my patient and the baby, Frank, early in December, it is quite certain that both of these children had either measles or a very light form of scarlet fever; also that one of the two children taken ill on December 24th certainly had scarlet fever, and there is very little doubt in the case of the other. Against the view of secondary origin must be noted the virulence of the throat-affection, the interval of nearly a month between the disappearance of the measles in the case of the baby and the appearance of pseudo-membranous throat-trouble, and the occurrence during this month of my case and two fatal cases of what was clinically malignant diphtheria. A second possibility is that my case was non-diphtheritic, and that the child in whose nose we found a membrane on December 25th—twenty-four hours after he was taken ill—had contracted primary diphtheria from an independent source, and infected his brothers. Thirdly, it is possible that all four cases were diphtheritic, the bacillus in the ocular pseudo-membrane remaining, for some reason, undiscovered.

In the literature of diphtheria there are only incidental allusions to the bacteriology of pseudo-membranous conjunctivitis. The few that I have found I owe to the kind help of Professor Welch. Artificial conjunctival diphtheria has been produced in cats by inoculation with the Loeffler bacillus. The bacillus has also been found in pseudo-membranous conjunctivitis occurring in connection with diphtheria.[1]

In a case reported by Trousseau,[2] secondary to measles, with loss of both eyes, and occurring in

[1] Kolisko and Paltauf: Wiener klin. Wochenschrift, 1889, No. 8.
[2] L'Union Médicale, 1887, No. 9.

connection with multiple abscesses and broncho-pneumonia, Darier found the conjunctival pseudo-membrane swarming with organisms, but he did not find the Loeffler bacillus.

The following propositions concerning pseudo-membranous conjunctivitis seem to me justifiable:

1. There are two varieties: one of the same nature as primary diphtheria; the other apparently a sequel of many and widely different pathologic conditions, having no relation to diphtheria. "Plastic conjunctivitis" seems the most appropriate term for the latter variety.

2. The classical distinction between diphtheritic and membranous conjunctivitis, based upon the presence or absence of infiltration in the tissues of the lids and ocular conjunctiva, is inadequate.

3. The only absolute proof of the diphtheritic nature of a pseudo-membranous conjunctivitis is the demonstration of the Loeffler bacillus, or later, the occurrence of paralysis, or some other sequel of diphtheria. Clinically, the presence of constitutional symptoms is essential to such a diagnosis.

4. The cause of the pseudo-membrane in plastic conjunctivitis is not certainly known, and probably it is not always the same. In some cases, at least, there seems good reason to attribute it to the invasion of streptococci, an infectious disease, or catarrhal conjunctivitis, or traumatism, or scrofulous habit, or some other influence lowering the resistance of the tissues and paving the way for infection.

5. Plastic conjunctivitis may be more dangerous to the eye than a pseudo-membranous inflammation undoubtedly diphtheritic, experience showing that the danger is in direct ratio to the degree of lid and conjunctival infiltration.

515 NORTH HOWARD STREET.

INSANITY IN PRIVATE PRACTICE.[1]

BY RICHARD DEWEY, M.D.,
MEDICAL SUPERINTENDENT STATE INSANE HOSPITAL.
KANKAKEE, ILLINOIS.

To one who has had some experience in the care of the insane the first idea that presents itself when considering insanity with reference to its occurence in private practice is the great disadvantage of a medical education that fails to provide the average practitioner with any adequate knowledge of insanity.

The courses of instruction given at a majority of our medical colleges are such that it is possible for a man or woman to graduate in medicine and enter upon practice without ever having seen an example of insanity, or having gained any intelligent idea of the etiology, clinical history, diagnosis, prognosis, or treatment of insanity.

[1] Read before the Illinois State Medical Society, May 18, 1892.

These courses of instruction lay a foundation whereon a knowledge of most of the physical diseases may be built; but in reference to insanity, the fact that it has a physical basis in pathology is but imperfectly understood, and there is often even in the minds of otherwise able and intelligent physicians great ignorance, and even superstition, upon this subject. The older ideas of demoniacal possession or some mysterious and unexplained fatality have scarcely been outgrown. A disease that affects the operation of the mind is apparently removed from the category of ordinary diseases, and there is introduced a new and strange element that seems an insoluble puzzle.

The complete elucidation of the interdependence between the brain and the mind is not, in the present state of knowledge, possible. Griesinger, in his classical treatise, remarks that if some higher intelligence were to descend to us and endeavor to explain the manner in which insanity is produced our own intelligence would not be sufficient to grasp the explanation. This is probably true, and yet we are loath to admit that the subject is beyond comprehension. A famous professor of mathematics once remarked to me when I quoted Griesinger's statement to him, that if an explanation were offered him from any source he would try mighty hard at least to understand it. In the years that have elapsed since Griesinger wrote, it must be admitted that great progress has been made in arriving at a comprehension of the mode in which insanity is produced.

Years of experience with bodily diseases are of little assistance to the physician in coping with mental diseases, unless a solid foundation in nervous pathology has been laid. Metaphysical conceptions of mind render it difficult to understand that there is a physical basis for the disease, and in meeting a case of insanity the unaccustomed practitioner is suddenly confronted with a situation the key of which seems to have been lost. He is likely to think that it has been thrown into the deep well of metaphysical speculation, but in reality it is accessible, and it is only necessary to dig a deeper stratum of the same science of pathology that has been his guide in other diseases; but the opportunities for that deeper study have been lacking to most practitioners, and thus the "things that are not confound the things that are." The only remedy for this confusion is the thorough study of the anatomy, physiology, and pathology of the brain and nervous system as illumined by the newer researches of recent years.

The sciences of neurology and psycho-pathology are in their infancy, but great progress is being made at the present time in their elucidation. To the general mind there is an element of awe and mystery in insanity, and many a general practitioner

when brought face to face with an acutely insane patient may say, with Shakespeare, (substituting "insanity" for "conscience,") "thus insanity doth make cowards of us all," and he feels a degree of anxiety and confusion that are fatal to coolness of judgment. The masterly control of the situation which is his in ordinary cases is gone, and under such circumstances the disposition manifests itself to pass the case on, to call in the aid of extreme measures or to unload the responsibility in any manner that may be possible. In the larger cities it is often practicable to secure the advice of one who is familiar with the specialty, but the larger number of such cases occur in situations where they are beyond the reach of expert counsel, and the family physician is compelled to take charge of them, and do the best he can, and in dealing with them is in danger of making one or another of several common mistakes.

First. He may hurry the patient off to a hospital when such a course is not really necessary.

Second. He may keep the patient at home until some unfortunate casualty occurs, or until the most favorable time for treatment has forever passed away.

Third. In dealing with the case he may make unwise and unnecessary use of powerful nervines, sedatives, and narcotics. He may resort to harsh measures of restraint which are unnecessary, or he may indiscriminately indulge the whims and vagaries of the patients or their friends in such a manner as to be harmful.

In endeavoring to lay down a few lines for guidance in this matter I will briefly offer some suggestions under the foregoing heads.

The reason for the embarrassment of the general practitioner is that he has had little or no opportunity of studying normal or diseased brains, either clinically or pathologically; and a great advantage might be gained in this respect by almost any practitioner who would lay out a course of reading on this subject, and would utilize every opportunity that offered for examination and study of brains, both normal and diseased; and for the convenience of anyone not familiar with the literature I append hereto a list of works that would be of value in such a course of study:

Sanity and Insanity (Mercier). Manual of Lunacy (Winslow). Mickle, on General Paralysis. Clouston. Landois. Bucknill and Tuke. Nerve-Prostration (Roose). Familiar Forms of Nervous Diseases. Diseases of the Nervous System (Gowers). Spitzka. Maudsley. Physiology of Mind (Carpenter). Lehrbuch der Psychiatrie (Krafft-Ebing).

On taking up the possibilities of error in dealing with a case of insanity in private practice I will speak of

First. Sending the patient too soon, or unnecessarily, to an insane hospital.

The sending of a patient to an institution for the insane is a grave step, and the decision on this point is often a difficult one.

The consequences are serious, especially as the insanity thus becomes a matter of public notoriety and record, and there is no denying that this is an injury to an individual in business and social life. Although the more enlightened opinion of the day recognizes insanity wholly as a disease, there is in the minds of many still an association of something disgraceful in connection with it, and in our own State of Illinois this fact is emphasized by the operation of the law that compels all insane persons to appear in court and be tried by a jury (?) before they can be sent to an institution for the insane.

An anxious question of the patients and of their friends in such cases is as to the treatment the patient will receive if sent to an institution. There is, undeniably, in the public mind an attitude of suspicion toward institutions for the insane, and a greater readiness to believe ill than well of them. Without attempting to discuss this, it can only be said on this point that, while there is nothing perfect in this world, and abuse and neglect may occur in such institutions, the greatest pains are, I believe, universally taken by those in charge to avoid abuse and neglect, and with my knowledge of this matter I feel justified in saying that the chances of patients in respect of their treatment are better in than out of the hospital. The care of the patient's own family and friends is very likely to be injudicious, and not only injudicious but cruel. Some of the greatest barbarities I have ever known to be inflicted upon the insane were inflicted by their own family and friends, and it is my belief that there has been more illegal confinement and harsh and injudicious treatment in their own homes than in institutions.

The two things to be considered in deciding about sending a patient to the hospital are, whether there is serious risk to the patient himself or to others in keeping the patient at home; and whether the patient's own proper care and chance of cure require the supervision of the hospital.

To determine if there is serious risk it will be necessary among other things to consider whether there are hallucinations, auditory or visual, or of the other senses, which make the patient dangerous; whether there are tendencies toward suicide or homicide; whether there are perverted instincts or impulses to acts of violence, destruction, or outrage, and whether there is a prolonged loss of sleep or of food.

It is necessary to remember that in going to the hospital the patient comes in contact with others, and that such contact may be harmful, though every

effort may be made to avoid the harm from this source. In every well-regulated hospital special efforts are directed toward curative treatment and toward avoiding every association or contact that might be injurious.

The advantages at home are that the patient has the personal care of friends, and is not associated with other patients, and is in familiar surroundings. Certain forms of insanity may be more susceptible of care at home than others. Among these Hughes[1] mentions the insanity of pregnancy, childbirth, and lactation, alcoholic insanity, tuberculous or paralytic or senile insanity, to which I would add cases of hysteria, neurasthenia, and habit cases, generally of morphine, alcohol, etc., and also of helpless, feeble, and simply fatuous cases, although acute dementia may be marked by sudden violent outbreaks, necessitating the restraint of a hospital; and furthermore, in any one of the conditions mentioned the circumstances may be such as to require prompt removal to some institution.

If there is a removable cause and a prospect of early relief, it would be better to arrange for the care of the patient at home; to prepare a room, with screens at the windows, and secure one or more nurses, and endeavor to tide the patient over the attack. These arrangements may be made at a neighbor's house, or at the physician's house, or in any private house or sanitarium. Some of these patients may also go among relatives or travel without serious risk. In all of such cases, if possible, advice should be secured of some one having extensive knowledge of insanity. The pecuniary means and resources of the patient also enter largely as a factor in determining whether or not he can be treated at home.

If the patient is sent away there may be a choice between public or private hospitals, sanitariums, etc. Many patients require as a first requisite a total change of surroundings, and this may be secured without sending them to public hospitals.

When patients are kept at home certain adjuncts to their treatment may be useful, as baths in various forms, and massage. Shampooing of the head is often very soothing. A thing that renders home-treatment now more feasible is that there is an increasing body of skilled nurses and attendants becoming available. Many of the institutions for the insane have training-schools, and send out with the classes of their yearly graduates many well-qualified nurses and attendants, and the trained nurses and attendants of the general hospitals also can often be secured. If the patient is in good physical condition a large amount of exercise may be taken, to the point of physical fatigue, and better rest and sleep thus be secured. In all cases, patients should be largely kept in the open air, if their condition will admit of it, and sometimes to secure sleep at night a glass of milk-punch, or some malt liquor, will be more efficacious than large doses of hypnotics, and the after-effects will be less harmful.

Second. The next question has reference to keeping patients at home improperly. The reluctance of friends to send the patient away is often so marked that it must be confessed that there is more danger of improper detention at home than of premature sending to a hospital. The opposition of the patient or of friends in this respect is at times unreasonable, and at other times quite reasonable, and this point needs careful weighing. The advantages at home have been mentioned, personal care and the presence of family and friends, but there are certain cases in which these are injurious. Many patients are quite obstreperous and unmanageable with their own family and friends, who are easily cared for by judicious strangers.

Some patients must absolutely go to the hospital. Most cases of acute mania, of epileptic insanity, and of agitative melancholia, come under this head; also those who are excessively noisy, filthy, destructive, or have perverted instincts.

The cases in which the family and friends of the patient are not likely to give good care to the patient are those of hysteria and nervous prostration, in which the friends are over-sympathetic, and too much governed by the unreasonable fancies of the patient; and, on the other hand, if there is an overbearing and arbitrary disposition on either side, with irritable temper, cruelty may result. Another risk of not sending patients away is that their own family and friends, especially neurotic persons and children in the family, may be injured by the presence and contact of such persons in immediate daily intercourse.

Third. In considering the course to be pursued in case patients are treated at home, the following points should be taken into account: To secure, where it is available, expert advice; to avoid excessive use of drugs. Drugs form the smallest part of the treatment oftentimes, as it is the general surroundings and hygienic management, and the influences of a social, moral, and intellectual kind, to which we must look for benefit.

If patients cannot be kept at home without protracted stupefaction by drugs it is better to send them away. Hypnotics and sedatives should in general only be given at night, and the patient should through the day be free from their effect. If the patient is in good physical condition, a good deal of sleep may be lost in the early stages without serious harm.

[1] Alienist and Neurologist, vol. ii (1881), p. 28.

Nurses or attendants, one or more for day or night, or both, will generally be needed, and a room properly arranged for the care of the patient.

A constant lookout should be kept for the development of any dangerous tendency. Some frightful tragedies have occurred in the cases of patients treated at home, even in the practice of noted and experienced specialists engaged largely in this line of practice.

In dealing with patients, common sense must be applied to all that is done. The unreasonable whims of the patient should not be yielded to, and yet his harmless fancies should be gratified as far as may be possible and for his good. In some cases, it is especially important to avoid undue sympathy, and in others any harsh or arbitrary thwarting of the wishes of the patient may be harmful.

The question of application of any means of mechanical restraint, such as strait-waistcoats, muffs, wristlets, mittens, etc., often becomes an urgent one. It may be stated, as a general rule, that a case which cannot be managed at home without such means should be sent to the hospital. It will be a matter of exceeding rarity that anything of this kind need be employed under judicious management in an institution, and the resources of the institution for avoiding their use are far greater than those of a private house. Every possible resource should be exhausted before applying anything of this kind.

In conclusion, a word of advice as to the method to be adopted in case it becomes necessary to send a patient to the hospital. In dealing with the patient a frank and straightforward course should, under all circumstances, be pursued. One of the most vicious tendencies of the friends of patients and of those generally who have had no experience in this line is to conceal the truth from patients, to fall in with all their whims, delusions, and vagaries, as if they were believed in; to promise them everything they ask without any thought of keeping the promise; to tell them falsehoods, *e. g.*, that you do not believe them to be insane; that if sent to the hospital they are going to a first-class hotel to board, and have everything their own way; that if they go to the hospitals they are only to stay a few hours or days at most. All these methods of deceiving patients are injurious and harmful in a high degree. Patients should not be taken to the hospitals by deceit. Of the two, force is preferable to deceit. It is rare, however, that any patient who would be manageable under any circumstances would not be more so by being dealt with frankly and rationally, but kindly.

In conclusion, one guiding principle may be emphasized, which is more needed than any other in dealing with the insane, namely: To treat them as nearly as the conditions of their insanity will allow, in the same way that we would treat a rational fellow-being or wish to be treated ourselves.

SUGGESTIONS ON THE TREATMENT OF EARLY SYPHILIS.

BY ALFRED EICHLER, M.D.,
PHYSICIAN TO ST. JOSEPH'S HOSPITAL, SAN FRANCISCO, CAL.

AMONG the advances in therapeutics that have not been generally adopted by the medical profession should be mentioned the use of hypodermatic medication in syphilis. To one who has experienced in actual practice the faults and disadvantages of antisyphilitic medication by the mouth and by inunction, it is almost astonishing that so few general practitioners, not to speak of specialists, have taken up the subcutaneous method. Although I have employed injections of soluble mercurial salts only during the last two years, I have already become so thoroughly convinced of the utility and the advantages of the method that I desire to call further attention to its application.

One of the reasons why subcutaneous injections are not more frequently practised is, perhaps, that so many different agents, or rather salts of mercury, have been advocated for the purpose, with claims of special excellence for each one, as to almost confuse the uninitiated. The salicylate, thymolo-acetate, cyanide, benzoate, albuminate, and peptonate are the soluble preparations of mercury most often suggested, while among the insoluble, gray oil, the mild chloride, and the oxides seem to have the preference.

I have used the salicylate in only one case, and have found it not to possess any advantages over corrosive sublimate, which I have injected in all of my other cases, now some fifteen in number. I have always used corrosive sublimate in the solution suggested by Bartholow:[1]

℞.—Hydrarg. chlor. corros. . . gr. j.
Glycerin. }
Aquæ } . . . . āā ʒj.—M.
Ten minims contain gr. $\frac{1}{12}$.
S.—Inject ten minims daily.

I have injected this amount daily, always with the rigid antiseptic precautions, usually between the shoulder-blades or into the gluteal region. With the exception of my first case, I have never had difficulties of any kind following the injections—a fact that I attribute mostly to the antisepsis practised, as well as to the depth of the injections.

I found it necessary, however, from the outset to discard the ordinary hypodermatic needle. Instead I employ a thin, slender needle, not more than two inches long, such as are sold by instrument-

[1] Materia Medica and Therapeutics, p. 254.

dealers to morphine-habitués who practise hypodermatic injections. Injections with this needle cause almost no pain if the fluid is thrown sufficiently deep. Of course, it is necessary to have a number of needles on hand, as they often become clogged from the corroding action of the sublimate solution on the metal; if treated properly, however, by cleaning with warm water, and drying thoroughly after each injection, a needle will last for at least a half-dozen injections.

I wish to dilate somewhat on the plan of treating syphilitic patients that I usually employ. All of my patients of this class are private patients, and are therefore more easily controlled and better managed than migratory and unreliable dispensary or hospital out-patients. They are commonly seen shortly after the appearance of the primary lesion, and are then kept on some placebo, given, perhaps, with a view of regulating the bowels or quieting a disturbed digestive tract, until the appearance of a rash or other decisive symptom confirms the diagnosis of syphilis. During this time, the initial lesion is dressed once a day with an application of equal parts of mercurial plaster and carbolated vaselin. If the sore presents a mixed character, *i. e.*, if it partakes of the characteristics of chancroid, and is deprived of a mucous covering, with secretion of pus, an ointment of iodoform and vaselin (1 : 4), scented with oil of rose, is prescribed to be applied twice daily. The patient is instructed to call at least twice a week, and is examined thoroughly each time. After the primary lesion has healed, he has to call once a week until the rash has appeared. According to my notes, the earliest eruption occurred after the fourth week, and the latest after three months.

As soon as the eruption is seen, hypodermatic injections are begun. The patient calls daily at an hour agreed on, and receives an injection containing one-twelfth of a grain of corrosive sublimate, and five minims each of glycerin and water. I use a separate needle and a separate solution for each patient. The solution must always be kept perfectly clear. Before giving the injection, the back is wiped with absorbent cotton saturated with ether, over an area about five inches square, to remove perspiration, etc.; then a 5 per cent. solution of carbolic acid is applied by means of an absorbent cotton sponge; after the skin is thoroughly dried, another pledget saturated with pure ether is applied to the point at which the needle is to be introduced, thus temporarily producing a local anesthesia. The injection is then made by quickly introducing the needle deeply, until muscular tissue, or at least the deeper layers of cellular tisue, have been reached; the more remote from the skin the contents of the syringe are deposited the less the pain afterward experienced by the patient. The local anesthesia produced by the ether is sufficient to prevent the patient from feeling the injection, and often after the needle has been withdrawn have I been asked whether I had already injected. The injections are repeated daily until twelve have been given, representing a total of one grain of corrosive sublimate. They are then discontinued for one week. After that time, they are repeated daily until twelve more have been given. After the second twelve, I discontinue for another week, and then give the final twelve, making thirty-six in all. In a few instances of evidently very mild syphilis, I have omitted the third dozen. Ordinarily, however, I insist upon the full number of injections. It is astonishing how rapidly skin-symptoms disappear under this treatment. I have seen a marked syphilide subside after the third injection, so that by the last injection of the first twelve not a trace was noticeable. Mild eruptions have usually faded away by the eighth day. In a case of syphilitic alopecia, the hair began to grow after the eighth injection had been given, and within a month no bald spots were noticeable.

During all this time, I have the patient pay the strictest attention to his mouth. It is often stated that corrosive sublimate does not produce salivation as quickly as other mercurials; but then, as the absorption of the drug by the hypodermatic method is very rapid, I have always thought an ounce of prevention to be better than a pound of cure, and have abstained from determining the truth of the statement by actual experiment.

I prescribe for every one of my syphilitic patients a toothpowder composed of

℞—Potass. chloratis, Pulv. aluminis, Sacchari lactis, . . . āā ʒj
Pulv. kino, ... ʒj
Ol. menth. pip., . . . q. s.—M.

with instructions that it be freely used after every meal, with plenty of water and a not too hard toothbrush, at the same time suggesting frequent washing of the mouth with pure cold water.

I have thus far had no mercurial stomatitis to treat in my patients subjected to hypodermatic injections of soluble mercurial salts.

Recognizing that syphilis is a disease preëminently undermining the constitution and deteriorating the blood by the action of a special virus, I try to supplement the mercurial treatment by hygienic measures that aid in sustaining vital force. I request every one of my patients who does not lead an outdoor life to take a daily tramp of at least four miles, consequently of more than an hour's duration, preferably in one of the parks or along the bayshore. I further insist upon one point, and I think this more essential than the first: frequent baths, at least

three times a week, when not under treatment, and daily when injections are given. Cold-water baths, or at least water as cold as can be borne for fifteen minutes, is preferable; for swimmers—and the large majority of my patients were swimmers—I suggested open-air baths in the bay, even if the water was cold. After the cold bath, a walk of not less than fifteen minutes' duration should be taken.

I interdict alcoholic liquors entirely for those who have used them moderately; those accustomed to taking large quantities, especially of the stronger spirits and of beer, are ordered to limit themselves to claret and similar light wines. I believe that it is good practice during the taking of a mercurial course of any kind to relieve the excretory apparatus of all useless burdens, of which alcohol is certainly a considerable one. Further, as a majority of this class of patients are high livers, a temporary abstinence can only prove of benefit to them.

I have achieved success with this plan. The mercury subdued all symptoms promptly, while the physical exercise helped to build up the body materially. Almost all of my patients gained much in weight and strength. The physical appearance often changed rapidly. The skin, which had been rendered muddy by the protracted town-life and excesses in living, became clear and clean again; adipose tissue increased, and the patients became more robust in appearance. None of my patients has thus far needed more than thirty-six injections. As I have had none under observation for a longer time than two years, I may, perhaps, be somewhat rash in claiming unusual results for this plan of treatment.

Compared with other methods of treament—inunctions, the pill of the protoiodide, and Gibert's syrup—I claim that in all of my cases I have only noticed mucous patches in two instances, whereas previously to employing the hypodermatic method it seems to me that almost one of every three presented throat-lesions. Both of the two cases in which manifestations of syphilis reappeared, were engaged in the liquor business, and were perhaps exposed to greater temptations in the way of alcohol than the others. As their cases seemed mild, both had received only twenty-four injections, and under proper local treatment, gargling with solutions of potassium chlorate, and repeated applications of silver nitrate, and an additional dozen of injections, all lesions disappeared, and the patients have remained free since. In one, mucous patches had appeared in the fourth month, after the twenty-fourth injection, while in the other it was almost eight months afterward. Both have now been free for more than six months..

In none of the other cases have recurrences thus far been noted, and they are all yet under observation. None of my patients ever objected to hypodermatic medication, after the advantages and the promptness of the method had been fully explained. While there exists among certain classes a great prejudice against the hypodermatic syringe, mostly from fear of forming a habit, as soon as it is explained that all injections are given by the physician himself, that only a limited number is required, and that certain results can be quickly arrived at, then all objections on the part of the patient vanish, and in a short while he is more than pleased not to be compelled to swallow pills and mixtures, or even grease himself, but to be finished with all medication after he has paid his morning or evening visit to his physician. The latter also derives great benefit from the adoption of the hypodermatic method. In the first place, he has absolute control of his patient, thus gaining a point of great importance. Then, he employs accurate and exact dosage, as the injections are administered by himself, and there is no excuse for forgetting pills, etc. Further, there is more rapid absorption, and also excretion, than when either inunction or internal medication is employed, and consequently a more rapid disapearance of symptoms and local lesions. The alimentary canal is not disturbed at all; there is no diarrhea, as with the protoiodide or the tannate; there is less tendency to salivation than when inunctions are used, while the measure is more cleanly; finally, the proportion of relapses is, in all probability, diminished in comparison with other therapeutic methods.

The only requisites to a successful application are perfectly clear and properly concentrated and prepared solutions, absolute antisepsis, and deep injections with a fine needle, the further from the skin the better. I have never had any evil consequences, such as abscesses, except in my first case, in which I used an ordinary hypodermatic needle, and caused a good deal of pain, and set up a slight cellulitis by failing to inject deep enough. Since using the finer needles, and making deep injections, I have had no trouble and have caused no pain after the injection.

In the treatment of the later lesions of syphilis, I have not had much experience with the hypodermatic method, as a course of the iodides usually proves very efficient. I remember, however, one case that was sent to me. The patient, a young woman of doubtful character, had contracted syphilis about a year previously, and had been treated by a physician with pills of the protoiodide, taking as much as six grains in a day. After taking these for three months she thought herself cured, and omitted them until she began suffering from sore-throat. On examination I found a mucous patch on the soft palate almost as large as a half-dollar.

She received an injection of the sublimate daily for twelve days, with applications of silver nitrate, and after the eighth day nothing could be noticed in her mouth. This proved to me conclusively the effectiveness of the hypodermatic injections.

It has been suggested by some authors that a large quantity of mercuric chloride, say about a quarter of a grain, be injected into the buttocks once a week. I have always preferred to inject smaller quantities daily, even at the risk of causing a little more trouble. I believe that the small doses, frequently repeated, are more rapidly absorbed and excreted, and consequently exercise their effect sooner and more continuously than the large doses given only occasionally.

With injections of insoluble mercurial salts I have no experience. I have never tried them, and consequently my objections are based only on theoretic grounds. My first objection is that an insoluble preparation has to be converted by the action of the body-tissues and fluids into a soluble compound, and therefore I cannot comprehend why one should not inject a soluble compound at once. Another objection is that by reason of their insolubility they must be absorbed only gradually (during their residence in the tissues they are practically foreign bodies, therefore irritants). Although this slow absorption might at times be a desideratum, it is ordinarily a great obstacle, for, if symptoms of mercurial poisoning should arise, there would be no way of removing the injected mercury and all treatment directed to relieving the condition would be futile.

I might mention that when corrosive sublimate is injected beneath the skin, a hard nodule usually forms, which does not disappear for about a week; this is caused by the coagulation of the albumin by the sublimate, resulting in a hardening of the tissues, which, however, produces no ill results; in a week it is absorbed. When several injections are made at points close together, considerable tension occurs, from the pressing of the hardened tissues on the skin. This explains the weekly interval between each dozen of injections. The tension can, however, be easily relieved by the application of some softening ointment, rendering the skin more pliable. Tincture of iodine proves effective by stimulating absorption. When the injection is made deeply, preferably into muscular tissue, the consequence is insignificant, as the pressure and tension of the skin are relatively small. It is also wise to select for injection such parts of the body as are not subject to pressure from clothing, etc.

In giving thirty-six injections I have only attempted to set down a definite number, sufficient for ordinary cases. Whether this will prove enough in all cases for an eradication of the virus and subsequent immunity is a question that only time can settle.

A PLEA FOR SPECIAL STATE PROVISION FOR EPILEPTICS.[1]

BY THEODORE DILLER, M.D.,
FELLOW OF THE PITTSBURG ACADEMY OF MEDICINE.

ALL who have dealings or are brought in contact with epileptics, either in a professional, business, or social way are, I am sure, impressed by the peculiar misfortune of these poor sufferers. It is indeed a cruel irony of fate that the wretched epileptic usually knows not when or where or in what manner he will succumb to an attack; that he knows not what fright, consternation, or distress his fit will bring to those about him at the time of its occurrence. His future is always uncertain; neither he nor his friends can ever tell just when, where, or how his plans may be interrupted. A lady who is an epileptic and whose fits occur rather infrequently, once told me that she would be well satisfied if they were to occur many times as frequently as they did, if she could only have ample warning of the approach of each seizure, so that she might be spared the frequent humiliation of creating a scene. True, some more fortunate epileptics experience auræ sufficient time before a seizure to seek a place of safety and retirement. Then, too, there are those whose fits occur so infrequently as not to create a very serious break in their life's work; again, there are those whose attacks are always of the *petit mal* variety. But it is not for these last-named types of epileptics that I want specially to make a plea before this Society. It is for the epileptic whose fits are frequent and violent; whose mental balance is shaken; for those who are either friendless or poor, or both; for those who are in the hospitals, asylums, or almshouses of the State, or in wretched homes. In making this plea for the epileptics in our asylums and hospitals, I also make a plea for the other patients in these institutions who are compelled to be kept associated with them.

The mental aberration in the epileptic varies from an almost inappreciable deflection, through many shades, up to the most pronounced dementia or violent frenzy (which last-named state is one of the most dangerous seen in asylums).

Generally speaking, only those epileptics whose fits occur very frequently or with great violence, or whose mental alienation is rather pronounced, are found in our general hospitals or insane asylums. Many epileptics are, however, in institutions who would not be there at all were their relatives so situated that they could be cared for at home.

In 1890, there were in the various State insane

[1] A paper read at the forty-second annual session of the Medical Society of Pennsylvania, at Harrisburg, May 17, 1892.

asylums, almshouses, etc., throughout the Commonwealth, under the jurisdiction of the State Committee of Lunacy, 615 epileptics, the great majority of whom were indigent. These, together with those in general hospitals, would probably foot up a total in institutions of over 1000. There are probably 4000 or 5000 epileptics of all grades living in Pennsylvania.

On account of the great variation in the degree and nature of the symptoms of these patients, they are in most of the hospitals for the insane distributed through nearly all of the wards according to their general mental condition and the frequency and character of the seizures. An epileptic whose fits occur infrequently, and whose mental condition during the intervals between attacks is good, is placed in a ward with the quieter patients, some of whom are convalescents. It would seem almost cruel to compel him to remain in a ward with the violent or chronic insane. The companionship would be a constant source of depression to him; yet, placed in wards in which he is more nearly on a par with his fellow-patients, while advantageous for the epileptic, is bad for the other patients in that ward. For the fit, though perhaps infrequent, comes, causing distress and excitement when it does come. Who is there among the laity, unaccustomed to the sight of an epileptic fit, who is not greatly shocked in the presence of one? Who, then, can tell the back-set which a patient convalescing from acute insanity may not receive from witnessing such a painful and revolting manifestation as an epileptic fit?

In some of our general hospitals a separate ward is provided for epileptics. This plan possesses the great advantage of sparing the non-epileptic patients the pain of witnessing epileptic fits; but it is unfortunate in that it compels the epileptic who enjoys the possession of nearly all of his mental faculties and whose fits occur infrequently, to associate with the epileptic dement who has many seizures daily.

If all of the epileptics now inmates of institutions in the State were to be removed from them, I am sure the patients remaining in these institutions would be much benefited; besides this, the management of these institutions would be not a little simplified. By placing the epileptics so removed in a pleasantly located hospital, specially equipped for their care, where they could be properly classified, they too, in turn, would be much benefited.

There are now so many different hospitals built with respect to accommodating various classes of patients that it seems strange that almost nothing has been said or done in this country for special provision for epileptics. We have the hospital for women; one for children; one for opium-habitués and alcoholics; one for nervous diseases; one for the acute insane, another for the chronic insane; one for the criminal insane; another for those suffering from tuberculosis; still another for those suffering from carcinoma. Yet the epileptic, whose disease is, in a peculiar way, a special disease, has no special hospital provided for him in the United States, with the single exception of Dr. Baker's institution at Baldwinsville, Mass. The subject has, however, been agitated in at least two States—New York and Massachusetts.

On the other side of the Atlantic the epileptic has fared much better; for in Europe we find special hospitals provided for him in France, Holland, Switzerland, Sweden, and Germany. It is in Germany, however, that the principle of separate care and treatment of the epileptic has made most progress; for in Germany there are no less than ten institutions whose sole mission is the treatment and care of epileptics. Probably the most notable of these institutions is that at Bielefeld, near Hanover. The medical profession should feel ashamed that the necessity of separate provision for epileptics was not only first recognized by a layman—the earnest, thoughtful Lutheran pastor, Von Bodelschwingh—but also received from him the first practical impetus which, twenty-five years ago, laid in a small way the foundations of what is now the great and wonderful colony of Bielefeld. This thoughtful, pious, philanthropic clergyman not only recognized the special and peculiar needs of epileptics, but he set about providing for them in a way that may well excite our admiration. Of course, much was learned by experience as the colony grew; of course, much was done that had to be undone, and many methods of dealing with patients that promised good results proved disappointing. The colony has, however, been so well planted; it has been so well shaped and nurtured; it is so well managed and equipped, that it may be seriously questioned whether we could to-day start a plant in Pennsylvania which would in any material or essential way improve upon it. From a beginning of twelve patients, twenty-five years ago, there are now upward of 1000 in the various departments of the colony.

The plain, simple, effective manner in which the colony is managed may well excite emulation. There are no great, tall, foreboding "institutional" buildings; but instead, many small buildings adapted for the various grades of patients. The ample grounds give opportunity for as much agricultural employment as the patients can manage. Provision is made for many different occupations, such as printing, brick-making, iron-working, shoemaking for the males; and tailoring, weaving, and domestic work for the women. The whole general appearance of the colony is rather that of a peaceful village than that of a hospital.

The advantages of the essential features of this colony will, I believe, very generally receive the approbation of those most extensively acquainted with epileptics. These features may be briefly summarized as follows: 1. The lack of institutional character in the buildings and the near approach to ordinary village or rural life. 2. The opportunity for the extensive classification of patients. 3. The ample provision for engagement in many and diverse occupations, so that all physically qualified can find work suited to their respective tastes and abilities. 4. The provision for the most favorable hygienic conditions; the best moral and therapeutic measures; and the best mechanical appliances, such as special low beds, etc.

These features ought all to be incorporated in the hospital or colony which, I trust, our State will, ere long, cause to be established.

What sort of cases ought a special hospital or colony of this kind to receive? Of course, it goes without saying that very many epileptics who possess a high degree of intelligence and are but infrequently disturbed by seizures, need no State care of any sort. Napoleon and Julius Cæsar afford remarkable examples of the achievements possible for the epileptic. Then, too, there are the epileptics who are in comfortable circumstances financially and who have many friends. These will be loath to enter an institution, and they are in most instances in good position to be cared for privately. The institution should be established primarily to provide for indigent epileptics. Provision ought also be made for the admission of pay-patients. Indeed, it might even be well to provide special accommodations for patients of this class upon payment of ample rates, provided such care would not be a detriment to the colony or to any other patients in it. I am not sure, however, that the well-to-do would not be better off in a separate institution under private management.

One very important matter in connection with an institution of this kind would be the legal status of the patients. It would be quite necessary, at least for the majority of the patients, that they be detained legally, much in the same way as the insane are now detained. Provision might, perhaps, be made for voluntary patients, somewhat after the fashion of the new Massachusetts lunacy law. The necessity for such power on the part of the institution must, I think, be apparent to all who are much acquainted with the whimsical and erratic nature of the class of epileptics that would enter such an institution. They are very prone to take umbrage without cause and to be greatly offended or slighted by little or no provocation. Then, too, there occurs in some the highly dangerous and totally irresponsible period of the so-called post-epileptic state. During these highly unstable mental states patients would often leave the institution, just at the time when they most needed its care, if there were no legal provision for their detention.

I am not prepared at this time to submit specific plans looking to the carrying out of the scheme that I have thus broadly presented to you. I trust, however, that a full and free discussion will follow, and that the Society will vote in the end to present a petition to the Legislature asking it to take measures to provide for such an institution as I have here advocated.

THE METRIC SYSTEM.[1]

BY A. L. BENEDICT, A.M., M.D.,
OF BUFFALO.

A SYSTEM of weights and measures is to the physician what a system of money is to a business man—a useful and necessary adjunct, upon the convenience or inconvenience of which much depends, and which is not, on the one hand, defective, a barrier to success, or, on the other hand, perfect, a substitute for genuine business or professional ability. Our decimal system of money has doubtless saved the merchants of our country thousands of dollars in the value of their own time, in clerkhire, and in lessening the liability to error in arithmetical computations, but we can scarcely say that a man is any shrewder in estimating values or, in general, any more successful in business because he calculates in dollars and cents instead of pounds, shillings, and pence. It certainly would be sheer nonsense to criticise a physician's intelligence or power of combating disease on the ground that his units of measurement were not in accordance with the highest scientific usage. I advocate the metric system of prescribing, therefore, with precisely the same feeling as I would advise the adoption of an improved instrument or a more convenient method of keeping accounts.

The advantages of the metric system over the apothecary's are: 1. The ease of computation characteristic of any decimal system. 2. The scientific and exact correspondence between the units of volume and weight, in contrast with the approximate relation of the minim to the grain. 3. The fact that those using the metric system are in harmony with the majority of scientific and medical men the world over; it must be remembered that our apothecary's system is only approximately related to that in use in the British Empire. 4. The provision of units capable of expressing small quantities, without recourse to fractions. These advantages are so plain and they have been so

[1] A paper read before the Erie County, N. Y., Medical Society, embracing a report as chairman of a committee appointed to investigate the practical use of the metric system.

widely discussed that no more time need be devoted to them, but I shall take up more at length some of the objections that have been urged against the use of the metric system.

1. The adoption of the metric system would necessitate the unlearning of that with which the majority of the profession are familiar, and would require additional exertion in learning a substitute. This is the same irrefutable argument that was urged against our decimal monetary system and which has been brought to bear against every effort at reform that has ever been proposed in any branch of human activity. It should be remarked, however, that, at present, nothing more is asked than that the metric system be adopted in connection with the apothecary's. Every physician knows that, except in reading or listening to the thoughts of other men, he may be almost absolutely independent of everyone else in his prescribing. We must also bear in mind the fact that it is one thing to attempt to change the familiar habits of thought of a whole people and a much less formidable affair to undertake a similar change in a comparatively small body of men whose average intelligence and progressiveness is much above that of the mass of the people.

2. It is said that the use of the metric system is liable to bring about errors, both in writing and in compounding prescriptions. As to the former, blunders depend more upon the carelessness of individuals than upon the peculiarities of any system of nomenclature or numeration. Aside from the danger of mistakes in dose that are as likely to occur under one system as under another, errors in writing the metric doses can occur only from misplacing figures with regard to the decimal point and from illegibility. The confusion of dram and ounce signs, the cutting off of X's into V's, and the running together of two I's into a V, are quite as great sources of error. The use of a ruled decimal line on prescription blanks is a safeguard against false alignment. As to the second danger, that of mistakes on the part of the druggist, I have found this quite an imaginary one in Buffalo. Most pharmacists are perfectly competent to fill metric prescriptions, and, throughout the country, the colleges of pharmacy are far more progressive than are the medical schools in requiring a theoretical and practical acquaintance with the metric system on the part of their students.

3. A gentleman who, from his official position, was required to use the metric system, and who, from personal prejudice, made this use a purely nominal one, offered this objection, that prescriptions written in the metric system would leave an empty space in the bottles prepared for a given number of ounces. This reminds me of the anecdote of the shoemaker who apologized for a pair of misfit boots on the ground that if the customer would cut off his corns, probably the boots would be a perfect fit. To this suggestion the customer replied that he did not propose to plane his feet to the dimensions of any pair of boots. I must confess the same kind of egotism in regard to my prescriptions; but even from the practical and common-place view, there is no reason for a misfit occurring between the prescription and the bottle. There are already on the market bottles graduated to a convenient number of cubic centimeters, and I am informed by a pharmacist that one hundred cubic centimeters, the usual twenty-dose mixture, is a proper amount for a four-ounce bottle, leaving no more space at the top than should be allowed for thorough shaking.

Your committee has, informally and without much attempt at thoroughness, canvassed the local profession, comprising some two hundred and fifty regular practitioners, to ascertain the number and influence of those who use the metric system of prescribing. We are personally acquainted with about fifteen who use this system to the exclusion of the other, except in rare instances when commercial reasons or the necessity of particular caution may indicate the use of the older terms. Quite a number of other physicians use the metric system to some extent, and there are many others who would gladly do so were it not that they hesitate to leave the beaten track. Your committee has estimated that about thirty thousand prescriptions are annually written in the metric system in the city of Buffalo. It is also, nominally, in exclusive use at the Buffalo General Hospital, and this use at times becomes actual, as well as nominal, according to the views of the visiting and the house staff. At the Fitch Dispensary about a fifth of the patients are prescribed for in the metric system. It is in use at the United States Marine Hospital Office and in the marine ward of the Sisters' Hospital, at the Buffalo Eye and Ear Infirmary, and in part at the Ingleside Home Hospital.

ORIGINAL LECTURE.

EMBOLISM OF THE LEFT CORONARY ARTERY; SUDDEN DEATH.[1]

BY LUDVIG HEKTOEN, M.D.,
PATHOLOGIST TO THE COOK COUNTY HOSPITAL, CHICAGO.

LADIES AND GENTLEMEN: The man whose body we are about to examine was thirty-two years old when he died suddenly, about sixteen hours ago. He was a carpenter by occupation, and had commenced his usual work yesterday morning, but he was soon obliged to stop; he was assisted to the sidewalk by two men, and, complaining of intense pain in the chest, he was placed

[1] Report of the post-mortem examination made before the class in the Cook County Hospital Dead-house, May 17, 1892.

in the police ambulance and hurried off to the hospital, on the way to which he died.

This is all of his history that is known.

Inspection shows a well-nourished, muscular man, without any marks of bodily violence; there is marked lividity of the posterior aspect of the body, extending up to and including the ears; rigor mortis is quite decided.

Internal examination. — The abdominal cavity is empty; the peritoneum is smooth and shining; there are firm adhesions around the spleen, and also between the gall-bladder and the hepatic flexure of the colon. The diaphragm reaches to the fifth rib on either side. The pericardium contains the usual quantity of clear, yellow fluid; it is quite smooth, but the epicardium is thickened and grayish in color over the greater surface of the heart, but not more so in the vicinity of the coronary vessels than elsewhere. Both pleural cavities are partially obliterated by quite firm adhesions, and contain no fluid. The right side of the heart contains a moderate quantity of dark-red, fluid blood; the left side is practically empty. The semilunar valves are quite competent to the water-test. The endocardium of the right heart is normal; the tricuspid orifice admits four or five finger-tips readily; the cavity of the right ventricle is 8 cm. deep, and its wall is 4 mm. thick. The endocardium of the left heart is also nearly normal, there being a few yellow areas in the anterior segment of the mitral valve, the free margins of which also appear to be a little thickened; the mitral orifice admits three finger-tips; the cavity of the left ventricle measures 8 cm. in depth, and the wall is 1 cm. in thickness. In the myocardium of both ventricles are seen small, white areas and streaks, scattered quite freely over every cut surface; there are no areas of softening. In the aorta there are a few yellowish-gray areas, of irregular outline and size, extending from the valves down to the diaphragm, and occupying in the thoracic aorta a strip about 5 cm. wide that includes the orifices of the intercostal arteries; there is no very marked thickening of the intima, the yellow areas being situated in its upper layers. At the origin of the large vessels at the root of the neck the intima presents distinct scars; situated upon the wall of the aorta, just above the junction of the anterior with the left posterior aortic leaflet, is a wart-like mass, measuring about 4 mm. in height and 3 mm. in diameter, that appears to be composed of fibrin; it is quite firmly adherent to the wall of the vessel, and is a parietal thrombus in the aorta. On slitting up the left coronary artery I come upon a quite firm, grayish, granular mass that completely occludes the lumen of the vessel, to the walls of which it is not adherent, lying just in front of the bifurcation of the artery at the commencement of the anterior inter-ventricular groove. This mass is, in all probability, an embolus that has lodged at the bifurcation of the left coronary artery.

In the coronary arteries are seen many areas of yellowish thickening in the intima, but none of these areas is rough or covered with thrombi, the lumen of the vessels being practically of normal size, except at the point mentioned, where it was completely obliterated.

The lungs are heavy and soggy, and contain much blood and frothy fluid.

The spleen presents a considerable area of thickening of its capsule; the area is 6 cm. long, 2 cm. wide, and at the thickest portion it is nearly 1 cm. in thickness; it is fibro-cartilaginous in consistence, and quite uniformly yellow on the cut surface. In the splenic substance, which is rather soft, but otherwise like the normal, are two areas that consists of caseous, granular material inclosed in a dense, measurably thick, homogeneous capsule; one of these areas measures one, the other one one-half cm. in diameter.

The left kidney is 12 by 6 by 3 cm. in size; the capsule peels readily; the surface is smooth and the cortical markings distinct on the cut section, the labyrinths presenting plainly visible and prominent glomeruli, because the latter contain much blood; the kidney is quite firm, and blood runs quite freely from the cut surface. The pelvis of the kidney is normal.

The right kidney is of about the same size as the left; the capsule peels quite readily; the surface is smooth, but presents numerous areas of a light-yellow color, of irregular outline and varying size; on section these areas are, in each instance, seen to correspond with anemic infarcts in the kidney. The kidney contains altogether eight distinct, wedge-shaped areas, which have a uniform, light-yellow color, are bloodless, have a red line at their periphery, the base of the wedge lying upon the surface of the kidney, the apex in the smaller infarcts being situated within the cortex, in the larger ones down in the columns of Bertini; the smallest infarct has a base measuring 3 mm.; the largest has a base measuring 2 cm. in greatest diameter. The kidney is otherwise quite normal.

The bladder, seminal vesicles, prostate gland, and testicles present no abnormality. The liver and the gall-bladder are also apparently normal. The mucous membrane of the stomach is covered with a viscid, grayish, turbid mucus; it presents many folds and elevations—so that in places it is almost distinctly nodular; the folds are not obliterated on stretching the muscular coat, and the gastric mucous membrane rises above the esophageal at their junction—it is consequently thickened. The pancreas is normal.

There is no fracture of the skull; the membranes are smooth and shining; there are no areas of thickening in the pia, which is not abnormally adherent. The ventricles are empty; there are no changes, no thrombi, no emboli in the vessels at the base, and after the usual section of the brain we cannot discover any foci of old or of recent softening.

The anatomic diagnosis will consequently read: Chronic deforming endarteritis of the aorta and coronary arteries; parietal thrombosis of the aorta; embolism of the left coronary artery; chronic fibrous myocarditis; anemic infarcts of the right kidney; congestion of the left kidney; chronic gastric catarrh; chronic fibrous perisplenitis and pericystitis; gummata (?) in the spleen; chronic pleuritis; pulmonary edema and congestion.

REMARKS.—It can be quite safely stated that our examination has demonstrated the cause of this man's death, namely, embolism of the left coronary artery. This would cause anemia of almost the entire left half of the heart; a collateral circulation could not be established, because the coronary arteries belong to the so-called terminal arteries, and death would consequently ensue from cardiac paralysis before any consecutive degenerative changes in the myocardium could have time to become

apparent. The source of the embolus was, undoubtedly, the thrombus in the aorta from which fibrinous masses might at any time have been washed away with the blood-current. The thrombus formed upon a rough spot, due to the degeneration and loss of substance incident to the extensive chronic endarteritis that was present in the commencement of aorta. From the same thrombus came also, in all probability, the emboli that, lodging in the branches of the right renal artery, gave rise to the formation of infarcts as described; the yellow wedges or areas are due to coagulation-necrosis following the anemia that was caused by the blocking of the renal arterial branches, which are also terminal arteries; each anemic infarct marks out the area nourished by the corresponding vessel peripherally from the seat of the obstruction by the embolus.

The edema and congestion of the lungs can, in this case, be easily explained by the weakness of the left ventricle, as compared with the right, during the last moments of life.

The hyperemia of the left kidney is to be looked upon as compensatory, the right kidney being rendered functionless to a considerable extent by the many areas of anemic necrosis.

The fibrous myocarditis resulted from the chronic disease of the coronary arteries, which, gradually reducing the nourishment of small areas of the heart-muscle, finally caused a complete degeneration of these spots and connective-tissue substitution.

The truth of the statement "that a man is only as old as his arteries" is shown indirectly by the findings in this case; had the patient not had atheromatous patches in his aorta, the thrombosis and secondary embolism need not have resulted. Not knowing anything about the man's history, we cannot form any definite idea as to the etiology of the endarteritis; we cannot say whether it is an instance of the not uncommon, prematurely early involutional degeneration, the man being only thirty-two years old, or is due to some of the causes usually mentioned in connection with this disease, such as lead, alcohol, overwork, or syphilis. We can say that it is not secondary to renal disease, because the kidneys were found quite healthy, with the exception of recent infarcts; alcoholism, syphilis, and other causes cannot, however, be excluded, and whether, with regard to syphilis, actual evidences of this disease were present or not, in the shape of the possible gummatous areas in the spleen, cannot be definitely settled without a microscopic examination.

Finally, remember that we have here an excellent illustration of death due to blocking of a coronary artery—one of the most common causes of sudden death. The blocking may, as in this case, be due to embolism; it may be due to thrombosis secondary to chronic disease of the coronary arteries, or it may be due to occlusion of the orifice of one or both of the coronary arteries in the aorta by atheroma in this vessel, with or without the formation of a thrombus at the very orifice. The latter mode of obstruction was well illustrated in a man, thirty-five years old, who died suddenly in the street, and whose body I examined a few days ago. All the organs were found to be apparently quite normal, except the aorta, which was atheromatous down to the iliac arteries; just at its very commencement the process was most extensive, resulting in the formation of a grayish, raised, annular area, 1 cm. broad, involving the coronary orifices, which were only as large as pin-points; the left was occluded by a small thrombus hanging over the opening. In this case the coronary arteries themselves were not diseased, and the myocardium was quite healthy, but pale-grayish in color.

In all cases of sudden death that come up for medico-legal investigation the coronary arteries should invariably be thoroughly and completely examined.

119 LOOMIS STREET.

NEW DEVICES.

TREATMENT OF CRUTCH-PARALYSIS.

J. H. HUDDLESTON, A.M., M.D.,
ATTENDING PHYSICIAN, MEDICAL DISPENSARY, GOUVERNEUR HOSPITAL; ASSISTANT IN CLINICAL MEDICINE, NEW YORK HOSPITAL.

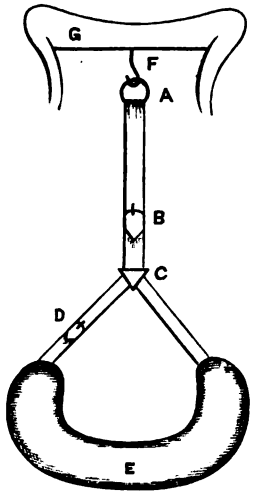
AMONG the unfortunate possibilities attending the use of a crutch, whether on account of a sprain, fracture, disease of joint or bone, or again, on account of a want of power in some muscles, is crutch-paralysis. For this, speedy cure can usually be obtained by rest; but too often the patient feels that he cannot rest, and sometimes the crutch, resumed after a rest, again causes paralysis. In prophylaxis, care in the selection of a crutch counts for much.

Krafft-Ebing[1] long ago pointed out that paralysis from this cause much less frequently occurs when the crutch is well-padded and has a grip so placed that when taken by the hand the arm is nearly straight. It is a not less important precaution to see that the crutch is sufficiently long, so that the body does not bend forward and rest on the great pectoral muscle exclusively. I have seen at least one case recover from the paralysis, with no other treatment than the exchange of too short crutches for a fit pair. With all care, however, paralysis sometimes comes on, or rather the ominous tingling of the fingers and slight weakness of grasp appear, and other means of treatment must be adopted. The cause of the paralysis is obvious: the body rests too heavily on the crutch, and the crutch presses too severely on the nerves. This is shown by the fact that the misfortune is more likely to occur in fat, elderly persons, and is exceedingly rare in children, though in these it does sometimes occur. If the body could be lifted partly from the support no injury to the nerves could occur. At the request of Dr. W. N. Bullard, of Boston, I sought a means of mechanical treatment, and I found the following practicable:

A perineal strap (E) is applied and fastened by a buckle (D) in front, so that the angle (C), at which the ends of the strap come together, shall be just above the crest of the ilium. At this angle (C) is a metallic triangle or ring, from the upper part of which ascends a suspensory strap of a length regulated by a buckle (B) to a ring (A). The perineal strap and the lower part of the suspensory strap (A C) go outside the underclothes and inside the outer clothes, but at the waist the upper strap passes, in women, outside all the clothes, while in men it is conducted under the waistcoast to the arm-hole, and out at that point. The upper ring (A) is then caught on a hook (F) screwed into the axillary bar (G) of the crutch. If

[1] Krafft-Ebing: "Krückenlähmung," Deutsche Archiv f. klin. Med., Bd. ix, 1872.

a pair of crutches is necessary, two perineal pads may be applied; if a single crutch is sufficient, one pad will give enough support. The suspensory straps must be buckled like suspenders at such a length that when the crutches



are in position, and the rings attached to the hooks, the axillæ feel no pressure, and the body rests on the perineal bands. When the patient sits, the ring can be removed in an instant from the hook and the crutch put aside, and when the patient again takes the crutch, placing the ring on the hook is also only momentary. All the straps must be inelastic, and may be made of either leather or webbing; if the latter, an inch is a good width. A large part of the success of the apparatus depends on the comfort of the perineal strap. This, when padded, should be large, smooth, and firm. One of the best of such straps is made of chamois skin stuffed with cork-dust; a cheaper form is made of canton flannel sewed into the shape of a sausage about a leather or webbing core.

A more complex pad that can be made comfortable for any one is that devised by Brackett,[1] which is usually made of leather lined with felt. Whatever form is used, the padded portion must be so long that no part of the seat is unprotected; any greater length is clumsy. Comfortable as the apparatus is when properly made, it is a trial to the patients who have to wear t, but it does, as I have found in four cases, accomplish its work; it keeps pressure from the axillary nerves, and insures speedy recovery.

70 WEST ELEVENTH STREET, NEW YORK.

[1] Orthopedic Surgery, Bradford and Lovett, p. 312.

A SIMPLE BOTTLE INHALER.

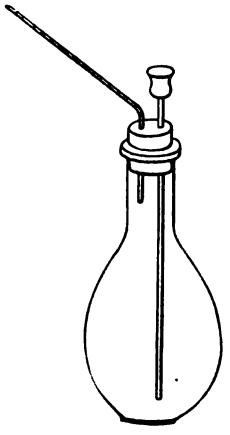
BY W. SCHEPPEGRELL, A.M., M.D.,
CLINICAL ASSISTANT TO NEW ORLEANS EYE, EAR, NOSE, AND THROAT HOSPITAL.

REALIZING the importance of medicated vapors in connection with the treatment of diseases of the lungs and respiratory passages, I have endeavored to devise an inhaler that, while effective, durable, and not likely to get out of order, could still be sold at a reasonable price.

The cheap inhalers are usually of little value, and the more costly ones are beyond the means of the poorer class of patients.

The device represented in the accompanying illustration fulfils the indications of an efficacious inhaler, and, on account of the simplicity of its mechanism, can be sold at a small cost. It is made for me by Messrs. Eimer & Amend, of New York.

It consists of a one-pint flask, closed by a rubber stopper having two perforations. In one of the perforations is passed a funnel tube to within a quarter of an inch of the bottom of the flask. Into the other perforation is passed another glass tube, one extremity of which extends an inch into the flask, the other extremity being bent at angle convenient for application.



For use, the flask is filled one-third with water or other diluent, warmed when advisable. The medicament, as tincture of iodine or eucalyptol, may then be dropped in sufficient proportion through the funnel tube. The patient then places the bent extremity of the tube in his mouth and inhales the air medicated by its passage through the solution in the flask.

When the solution loses its strength, additional medicament may be dropped into it through the funnel tube.

When it is desired that the mucous membrane of the nose and naso-pharynx should be also treated by the medicated vapor, a rubber tube and nose-piece may be attached to the glass tube of the inhaler, and the inhalations made through the nostril, to which the nose-piece of the inhaler is applied.

I have for some time, with much satisfaction, used inhalers like that described.

271 CARONDELET STREET.

MEDICAL PROGRESS.

Pachydermia Verrucosa Laryngis.—MEYER (*Bertin. klin. Wochenschr.*, No. 19, 1892, p. 454) has reported two cases of pachydermia verrucosa laryngis successfully treated by gradual excision. One was that of a man, fifty-three years old, who for two years had been hoarse, and for three months had suffered with marked and progressively increasing dyspnea. The right half of the larynx was found occupied by a chalky-white tumor, of cauliflower appearance and hard consistence,

extending beyond the median line and obstructing the view of the deeper parts of the larynx. The growth apparently originated from the ventricle. There was neither history nor evidence of syphilis or of tuberculosis. The nutrition was maintained. From the fetor of the breath, from the size, appearance, and origin of the tumor, from the age of the patient, a diagnosis of carcinoma was reached. Examination of a bit of tissue removed failed, however, to disclose the histologic structure of carcinoma, and the removal of the growth by the natural passages was decided upon. This was accomplished piecemeal in ten sittings. A small growth recurred; this was removed; the patient thereafter remained free. Histologically it was found that beneath a thick layer of epithelium was a connective-tissue stroma, sending papillary processes toward the surface; between these dipped epithelial processes; the lowest layer of epithelium consisted of fairly high cells, presenting here and there indications of division; toward the surface the cells were flatter, the uppermost layers being constituted of horny pavement epithelium. In the second case, in a man twenty-six years old, the symptoms had existed for eight years. The galvano-cautery had been employed with excellent results. The patient presented atrophic rhino-pharyngitis. The posterior wall of the larynx presented a hemispherical, grayish-white thickening, projecting for a distance of about a quarter of an inch into the larynx. The right vocal band, at its posterior third, was the seat of a pale-red, bean-shaped tumor, resembling the mass on the posterior wall of the larynx. Below the bands were several tumors of the same kind. A view of the left band was obscured by the mass on the posterior wall, but at the level of the ventricle a reddish prominence could be seen, on inspiration reaching almost to the middle line, and on phonation reaching still further to the right. The vocal band itself was thickened and posteriorly presented a depression into which the tumor of the right band projected. The subglottic mucous membrane was thickened. From the multiplicity of the growths, their circumscription, the absence of glandular involvement, the well-preserved nutrition, the age of the patient, together with the absence of evidence and history of syphilis and tuberculosis, a diagnosis of pachydermia verrucosa was made, and this was confirmed by subsequent microscopic examination. The administration of potassium iodide was followed by little change, so that by means of cutting-forceps the neoplastic growths were removed, a little at a time, until finally the patient was considered cured.

Incipient Posterior Spinal Sclerosis in a Case of Exophthalmic Goiter.—WIENER (*Inaugural Dissertation*, Berlin, 1891) has reported the case of a woman, twenty-two years old, who, for four months following childbirth, presented general nervous irritability, restlessness, palpitation of the heart, and itching of the skin. At the twelfth year of age, one foot was dragged for a period of time. Later there was anemia, which was relieved by treatment with iron. The patient was emaciated and anemic; the pulse was 130; the left ventricle was hypertrophied and dilated; the thyroid gland was enlarged; the eyes protruded; convergence was defective; the visual field was limited; the hands were hot and moist; sensibility to pain was diminished; the knee-jerks were wanting; attacks of vertigo occurred; memory was impaired; there was slight headache.—*Centralbl. f. klin. Medicin.*, No. 29, p. 611.

THERAPEUTIC NOTES.

Treatment of Uterine Hemorrhage.—ROUTH (*Practitioner*, July, 1892, p. 5) recommends that in case of profuse menorrhagia, and especially if metrorrhagia is also present, without obvious cause, the cavity of the uterus should be explored. The best means of exploration is rapid dilatation of the cervix with graduated bougies, under anesthesia. With rigid antisepsis there is practically no risk and rarely consecutive pyrexia, unless malignant disease or salpingitis be present. Even if tubal disease is present or suspected, exploratory dilatation of the cervix for hemorrhage of apparently intra-uterine origin is not necessarily contra-indicated, salpingitis often being secondary to and aggravated by intra-uterine disease. If fibroids of the uterus are evidently present, the immediate cause of the hemorrhage may be a removable one, such as a coëxisting polypus or fungous endometritis. The uterine cavity should, therefore, when practicable, be explored before removal of the appendages or hysterectomy is considered. In some cases dilatation alone suffices to relieve hemorrhage and pain. If exploratory dilatation were more commonly adopted prior to the employment of Apostoli's treatment, it would lead to a more exact knowledge of the applicability of the latter and place its use on a more scientific basis.

Recovery from Twenty Grains of Strychnine.—WALLACE and MCRAE (*British Medical Journal*, No. 1647, p. 179) have reported the case of a man, sixty-five years old, who was seen some seven or ten minutes after the ingestion of twenty grains of strychnine sulphate. Apomorphine, gr. $\frac{1}{8}$, was given hypodermatically; six tumblers of hot water, with three tablespoonfuls of mustard and three tablespoonfuls of salt, were administered by the mouth. Three ounces of tannic acid were likewise given, and the stomach was washed out by means of the stomach-pump. Finally a large dose of potassium bromide and thirty grains of chloral were given and strict quiet and absence of light and movement enjoined. There were twitchings and jerkings of the muscles of the limbs and tetanic spasms of the muscles of the lower jaw, with violent contractions of the esophagus. Emesis was prompt and energetic, and the man recovered.

Abortive Treatment of Erysipelas.—TALAMON (*Münchener medicin. Wochenschrift*, 1892, No. 28, p. 501) recommends the employment of a spray of sublimated ether (1 : 100) in the treatment of some cases of erysipelas. If the infiltration be not extensive, the application is to be continued until vesication occurs; if the involvement be extensive, the central portion is only to be moistened; as the periphery is reached, the application is to be more vigorous and should extend beyond the line of demarcation. But few applications are necessary. If the eyelids are involved, they should be covered with moist borated compresses.

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SATURDAY, AUGUST 20, 1892.

THE TREATMENT OF PNEUMONIA.

SCARCELY any subject in the domain of practical medicine has been more discussed, and yet remains as unsettled, as the treatment of pneumonia. Changing views of pathology are responsible for much of the discrepancy of views upon the subject. In the olden days, as a matter of course, inflammation of the lung was treated by blood-letting and mercury. Antimony, too, had its vogue. With the reaction against venesection and the mercurials, and with the earlier advances in pathology, responsible for so much therapeutic nihilism, the expectant treatment was largely taught—and perhaps practised.

Drugging, however, was not entirely given up even when mercurials and bleeding were abandoned. Aconite, veratrum viride, and digitalis, widely differing in physiologic action, have in turn been strenuously urged for their influence upon the heart and circulation, in the attempt to overcome or compensate for the obstruction to the passage of blood through the hepatized lung.

With the acceptance of the germ-theory of disease and the discovery of the pneumonia-coccus apparently establishing the previously suspected infectiousness of pneumonia, the antiphlogistic methods of treatment, both old and new, have once more been discouraged; yet out of all the tumult a powerful voice is here and there still raised in strenuous advocacy of the lancet. We need but refer to DR. HIRAM CORSON, whose latest utterance took the shape of a paper recently read before the Philadelphia County Medical Society. As was well said by one of the speakers at the meeting in question, we must carefully discriminate among our patients. Whether or not there are actually different types of the disease, there certainly are many differences in the physical state and environment of those attacked by it, and a treatment that serves a good purpose in a given case, under certain conditions, may be worse than useless in another case, under different conditions.

Thus, the question as to the propriety of bleeding in pneumonia is one to which an invariable answer cannot be given. In a robust patient, at the very outset of the case, bleeding may cut short the progress of the disease; or again, when, during the progress of a case, a patient, robust or weak, is suffering from the mechanical consequences of obstruction to the free passage of blood through his pulmonary vessels, and the heart is over-distended and laboring ineffectually, depletion may have a beneficial effect by diminishing the amount, and to that extent favor a more equable distribution of blood in the body, and relieve the heart of a portion of its load. The loss of blood under these conditions cannot injure the patient, because, being stagnant and overloaded with toxic products, the blood has ceased to be either nutrient or energizing. The very removal from the circulation of a quantity of vitiated fluid may diminish the adverse influences against which the powers of recovery have to contend.

Under such circumstances, the administration of digitalis as a substitute for venesection would be futile. That which the therapeutist has to remedy is not a lack of power in the heart, but the conditions against which the heart is compelled to labor. Similarly, at this stage, the administration of the nitrites cannot replace venesection, but used earlier, intelligently, and vigorously, the use of the nitrites may prevent the occurrence of the conditions demanding venesection.

The time for the administration of aconite in the treatment of pneumonia is before consolidation has occurred; the indication is the same as for early venesection, and, used in this way, aconite is not unworthy of the name applied to it of the "therapeutic lancet." Unfortunately, however, cases are

not often seen at the stage at which aconite is most likely to be beneficial, and there is a time, which the practitioner of experience and judgment can recognize, when venesection will cut short the progress of the disease and aconite will not.

What are the indications for digitalis? These cannot be stated simply, for the problem is a complicated one. In certain patients and at certain stages of the varying progress of the case, a condition may be recognized in which the slowing of the rate of cardiac contraction, the heightening of blood-pressure, and the increased vigor of the systole, brought about by this drug, will insure a more equable distribution of the blood through the healthy portions of the lung and throughout the systemic circuit, thus practically permitting a cessation of function on the part of the diseased portion of the lung, but allowing the general physiologic processes of the rest of the body to go on with a minimum of disturbance. Again, it is only by experience and judgment, and familiarity with clinical indications gained by bedside study under the direction of an experienced preceptor, that this condition can be recognized.

Of veratrum viride we cannot speak with assurance, for we have no experience with it. It seems, however, to occupy a place midway between aconite and digitalis, but positive statements as to its value, and the conditions under which it should be used, must be left to those familiar with its action.

The ammonium salts play an important part in the treatment of pneumonia. The absence of chlorides from the urine, the well-known function of sodium chloride in preserving the fluidity of the blood-serum, the tendency to excessive fibrinous exudation, and to the formation of thrombi, characteristic of pneumonia, combine to give a therapeutic indication almost unmistakable. The fluidity of the blood must be maintained, and the most effective agents to this end are the ammonium salts. Three of these have special indications. Ammonium carbonate stimulates the heart as well as the respiration, and has a special value in what may be called the middle stages of pneumonia. Ammonium chloride, on account of the much larger doses in which it may be used, and possibly because it is a chlorine compound, is to be preferred in the earlier stages, when this special use of the carbonate is not necessary. Ammonium salicylate is of special utility as an antiseptic, and appears to exercise a peculiarly beneficial influence over the progress of those cases of pneumonia in which associated pleuritis is of notable extent.

In many cases the combination of ammonium carbonate, ammonium chloride, and, if the stomach will bear it, ammonium salicylate, has seemed to be of greater value than any one of the drugs alone.

The value of quinine in pneumonia is a question by no means settled. The weight of opinion is against its use, and yet there are many cases in which it seems to be beneficial. When a case is seen in its incipiency, the use of massive doses of quinine, so that forty or fifty grains are given in the course of twelve hours, is justifiable in the attempt to abort the disease. While the possibility of such abortion must always remain doubtful to those who insist that the diagnosis can only be made by symptoms that appear later in the pathologic course of the disease, there are not wanting those who claim to have observed cases of pneumonia aborted by such treatment.

External applications are sometimes of apparent benefit, though possibly more by equalizing the temperature and protecting the chest from drafts than from any direct or indirect influence upon the morbid process. Turpentine stupes and embrocations probably do more good by the collateral inhalation of turpentine vapor that attends their employment, than by the counter-irritation produced.

As a matter of course, the excretions are to be actively maintained.

Subcutaneous infusion (hypodermatoklysis) of saline solutions, as practised by F. P. HENRY, of Philadelphia, is unquestionably useful, probably by helping to maintain the fluidity of the blood in the same manner as the internal administration of ammonium salts, and by washing out noxious matters.

The inhalation of oxygen, while in no sense a curative measure, has its place in the management of a case of pneumonia, in the hope of keeping the patient alive until the morbid process has completed its course. The *rationale* seems to be that it supplies concentrated respiratory pabulum, thus compensating to some degree for the loss of aërating surface.

Under the stimulus of recent researches by BEHRING, the KLEMPERERS, KITASATO, and others into the natural processes of immunity and cure, a specific treatment of pneumonia has been proposed and practised, which offers a most encouraging prospect.

The lesions and untoward symptoms of the disease being attributed to a pneumotoxine resulting from the active invading microbe, natural recovery is held to depend upon the production of an antagonistic substance (anti-pneumotoxine) in the serum of the invaded animal. Thus NEISSER (*Deutsche med. Wochenshr.*, No. 25, p. 593; THE MEDICAL NEWS, July 23, 1892) has reported three cases of recovery of pneumonic patients treated by means of intra-venous injection of blood-serum obtained from convalescents two days after the crisis had occurred.

G. KLEMPERER (*Beiläge zum Centralbl. für klin. Medicin*, 1892, No. 25, p. 41) reports twelve cases treated with injections of the serum of highly immunified guinea-pigs. In five of these the crisis took place soon after injection. In the remaining seven subsidence of temperature and slowing of pulse and respiration followed. Eight cases were treated with injections of a concentrated culture of pneumonia-cocci heated to 60° C. By this means the organism is supplied with the immunifying substances, from which it develops the curative factor. In all eight cases the temperature declined by lysis, the fall beginning from twelve to twenty-four hours after the injection.

In one case recently treated at the Philadelphia Hospital the experiment has seemed to be successful. The technique is simple, the only requisite being complete sterilization of vessels and tubes, and the complete defibrinization of the blood presumably containing the antitoxine.

DISPARAGEMENT OF OUR PROFESSIONAL ANCESTORS.

THE following statement is found in an editorial in a recent issue of an American medical journal: "A hundred years or so ago our ranks were composed mainly of quacks and of impractical dreamers." Apparently this assertion is intended to apply to the profession not of this country only, but in general. Whatever the author's purpose, the remark will be considered by us as relating exclusively to American physicians. We question its truth for reasons that will now be presented.

Many of the practitioners of medicine in this country during the eighteenth century were educated in the best schools of the Old World before coming to the Colonies; many others who began their studies here completed them in famous institutions in Great Britain, or upon the Continent; and still others, born here, had their entire medical education abroad.

More than a hundred years ago, a successful medical school was in operation in Philadelphia, and one in New York, both established before the Revolution.

If the names upon the roll of medical teachers of "a hundred years or so ago" be compared with the names upon the roll of medical teachers of to-day, it will be found that there were quite as famous and able men then as now. Such a comparison will do no discredit to the men of the last century.

In the early days of medical teaching in this country the candidate for graduation was required to write a Latin thesis, and, from an examination[1] of some of these that we made a few years ago, it was evident that the authors had been carefully and capably instructed in Latin composition. These men had the mental discipline and the liberal culture that thorough study of the ancient classics gives. Here we beg leave to remark that we trust the day is distant when such studies shall be cast aside by those who are preparing to study medicine, sole attention being given to learning the physical sciences. However this may be, does it seem probable that students thus educated, "a hundred years or so ago," would be "quacks" and "impractical dreamers?" Would not the influence of such men rather have a strong tendency to elevate the profession? Is it probable, nay, even possible, that with such teachers and pupils there could be the condition described in the editorial we have quoted? To ask is to answer.

The times that immediately preceded the Declaration of Independence and which marked the Revolutionary struggle and the establishment of our system of government, were not favorable for "quacks and impractical dreamers" in any department of human effort.

If one recalls some of the illustrious names in the American medical profession in the eighteenth century—many of them those of great teachers, of eminent surgeons and practitioners of medicine, and observers and original contributors to professional

[1] One of the theses was by Dr. William Elmer, of Bridgeton, N. J., who became an eminent practitioner, and was also known as a patriot and a member of the United States Congress. It is an interesting fact that of Dr. Elmer's descendants, at least one in each generation up to the present time has been an honored member of the medical profession. Now, we believe, there are three.

knowledge—he will find that there were brave men before AGAMEMNON. The names of such men as the BARDS, BAYNHAM, BOYLSTON, BOND, CADWALLADER, CLAYTON, CRAIK, DORSEY, GRIFFITTS, PRESCOTT, REDMAN, ROMAYNE, SHIPPEN, TILTON, the WARRENS, HUGH WILLIAMSON, CASPAR WISTAR, above all in ability and fame, BENJAMIN RUSH, these, and more whose names might be given, can only be mentioned with reverent honor. Some of them were well known, not only in the profession, but also in council and in the field, assisting alike in the struggle for independence and in laying the foundations and erecting the superstructure of our national government. No man has occupied a larger place in American medical history than RUSH. CASPAR WISTAR was not only an accomplished anatomist, but an excellent teacher of anatomy and clinical instructor. It is doubtful if Philadelphia has now his equal, as certainly the entire country has not produced the peer of RUSH in medicine.

"A hundred years or so ago" there were several other great medical teachers, whose fame is part of the honor of the American profession. The motto of one of the oldest of English families is *Non generant aquilæ columbas;* and so such men as we have mentioned, whether teachers or practitioners, men who were neither "quacks" nor "impractical dreamers," did not produce a race of doctors materially differing from themselves.

Recognizing the important advances in medicine, especially in its scientific character, and remembering that humility is characteristic of true knowledge, we ought to beware alike of exalting our own attainments and of disparaging those of our medical ancestors. It is probable that the contrast between the profession as it now is, and as it will be a hundred years hence, will be greater than is that between the former and the profession as it was a hundred years ago.

SELECTION.

HIGHER MEDICAL EDUCATION.

WHY is it that admission to the profession of medicine in Massachusetts is at a disadvantage compared with admission to the profession of law? The very last thing the Law School or the Law Faculty would desire would be that their degree should admit to the bar. Other institutions have worked that out most thoroughly. Take, for instance, the school of law which is connected with Columbia College. It was demonstrated beyond a doubt that the fact that the law degree of Columbia admitted to the bar was a clear disadvantage to the school and to the profession. It is a clear disadvantage in medical education that the degree given by a faculty, a teaching faculty, should admit to the profession. The standard should always be outside, determined by another power.

Why is it that a full professor's salary in the Medical School of Harvard University—I mean for gentlemen who give all their time to the school, not the gentlemen who are in clinical or surgical chairs—why is it that the salary of a full professor giving his whole time in the Medical School is lower than in any other department of the university? Is this as it should be? That is the simple fact, it is lower; it is a good deal lower, than it is in the other departments of the university. Here is a point on which change should be promptly effected, that it is not fitting that the services of medical teachers should be so much lower than the services of other professional teachers in the same university. At best the scale of salaries for full professors in Harvard University is lower than in many other institutions, but in our Medical School we have the lowest full professor's salary. The gentlemen who serve in those chairs are not of less ability than those that serve us in law or in divinity or in the arts and sciences. They are not of less devotion.

All hangs on our English inheritances on this subject. In England the profession of medicine, the profession of surgery, does not now to-day stand on a level with the other learned professions. This is not the case on the Continent; it is conspicuously the case in England at this moment. They have the inheritance of the barber and the barber-surgeon still in their minds in England, and we have inherited two things from England, a lower standard of general education in the medical profession, the lower standard of requirement for admission to that profession or admission to the studies of the profession, and we have inherited this lower rate of compensation. I wish we could attach ourselves to the Continental schools of medicine rather than to the English in these regards. We have already far surpassed our English brethren in procuring for the medical and surgical practitioner the right standing in the community, in procuring for the medical and surgical practitioner the same standing which the lawyer or the preacher or the teacher holds; but we have something still to do with regard to the scale of instruction, previous training, required for admission to medical schools; and we have something still to do in the medical schools themselves in putting them on the right and equal basis of endowment which other professional schools, the schools of other professions, have already established for themselves.

The progress in medical education in our own university and in the other universities of the land made during the last twenty years, seems to me to be the most considerable progress that has been effected in any department of professional education within the same period. It is simply marvellous. When I look back on what was required of the medical school before the year 1870, not only in our own school but in many other schools, and compare it with what is required to-day, I see a progress which cannot be met in any other department of education, and I know that for that progress we are indebted largely to the prevailing sentiment in the medical profession. The Harvard Medical School would never have been able to carry out its changes of 1870–71—changes which reduced by nearly 40 per cent.

the number of students in the school, if it had not been for the support received through the expressed public opinion of medical men; and I believe that the change which is now before us, the change to the four-year course, will require the same kind of steady and enthusiastic support.—PRESIDENT ELIOT, *Boston Medical and Surgical Reporter.*

REVIEWS.

DISEASES OF THE URINARY APPARATUS: PHLEGMASIC AFFECTIONS. By JOHN W. S. GOULEY, M.D., Sen. Surgeon to the Bellevue Hospital. 8vo., pp. 353. New York: D. Appleton & Co., 1892.

THIS interesting volume consists of a republication and revision of the first part of a series of twelve lectures, which were delivered during the autumn of 1891, and subsequently published in the *New York Medical Journal.* They are offered by the author in this revised book form as a contribution to the pathology and treatment of a class of diseases the gravity and frequency of which render them worthy of the closest study.

Dr. Gouley is not an advocate of the operation of cystotomy, infrapubic or suprapubic, for the cure of obstinate cystitis with contraction of the muscular coat of the bladder. His method of treating such cases is by hydraulic dilatation of the bladder. The fluid used in irrigation is heated to a temperature of from 105° to 110° F., and injected into the viscus very slowly, one, two, or three ounces at a time, until a pint is used. This process is repeated once daily until eight, ten, or twelve ounces can be injected at once.

Dr. Gouley believes that a cystotomy may be of advantage as preparatory and adjuvant to hydraulic dilatation of the bladder, but without the latter the cystotomy will not effect a permanent cure.

The abortive treatment of urethritis is strongly condemned, as it should be. Dr. Gouley states that this supposed quick way of curing this complaint is as delusive as it is alluring, both to patients and physicians, for it seldom cuts short an attack, and, besides the great distress it causes, is often productive of grave effects upon the urethra and adjacent parts.

A brief outline of Dr. Gouley's views upon the subject of urethritis may prove of interest to our readers, as they differ somewhat from those of other authorities:

"1. There is no specific for urethritis, notwithstanding the popular belief in its existence.

"2. Urethritis cannot rationally be dealt with as a single phlegmasic entity, no matter what may be its cause.

"3. The treatment that is best suited to one type or stage of urethritis is often hurtful in another type or stage of the affection.

"4. Balsamics are contra-indicated during the first three stages of urethritis, and should not be administered until the fourth, or stage of decline, is fully established.

"5. Urethral injections are contra-indicated during the second and third stages, but may be used in the first stage and toward the close of the fourth stage.

"6. Injections of strong solution of nitrate of silver, or of strong solutions of any kind, are contra-indicated in all stages of urethritis.

"7. Urethritis is ordinarily too much and too vigorously treated. The more heroic and meddlesome the treatment, the greater the liability to accidents and complications, and the longer its duration.

"8. Confirmed acute contagious urethritis, under the most favorable circumstances and the most judicious treatment, rarely gets well in less than four weeks, except, of course, in the first attack in young and otherwise healthy men who are not over-treated. In the last-named cases it sometimes gets well in ten days or two weeks without medicinal treatment.

"9. Proper hygienic management is all-important in the treatment of urethritis; unless it is rigorously carried out, the medical and local treatments inevitably fail."

With this somewhat cursory review of an entertaining volume we would add our friendly criticism: the author has, in many instances, made use of a nomenclature that could have been improved by the employment of terms in more common usage. With this single criticism, the work may be heartily recommended.

TREATISE ON GYNECOLOGY, MEDICAL AND SURGICAL. By S. POZZI, M.D., Professeur Agrégé à la Faculté de Médecine; Chirurgien de l'Hôpital Lourcine-Pascal, Paris; Honorary Fellow of the American Gynecological Society. Translated from the French Edition under the supervision of, and with additions, by BROOKS H. WELLS, M.D., Lecturer on Gynecology at the New York Polyclinic; Fellow of the New York Obstetrical Society, and the New York Academy of Medicine. Two volumes. New York: William Wood & Co., 1892.

THE appearance of this book marks a new era in the development of gynecology. The author has devoted much elaborate study to the pathology of the conditions that lie at the basis of the various affections. Hitherto the subject of etiology has been treated on the most general principles, and all attention has been given to technique and those disputed questions of treatment that might have been more readily solved had the exact pathology been more clearly recognized. Assuming this principle (the importance of underlying pathologic conditions), the author has clearly defined the indications for treatment. In endometritis he has demonstrated the causal relation of microbic infection to the pathologic condition. He shows that in the genital canal there is a zone rich in microörganisms, which, after Winter, he calls the Dangerous Zone. Infection of the endometrium depends upon one of two processes: First, the penetration into the uterus and noxious influence upon the endometrium of the germs normally present in this zone, occurring from lack of resistance arising from general debility of the tissues, which reduces cellular vitality; second, upon the introduction of these germs into the cavity of the uterus by careless therapeutic procedures. This theory opens a wide field, in which gonorrheal and puerperal infection also figure.

As a result of these conclusions the author advocates: First, the utmost care in antiseptic precautions; second, active principles of treatment, shown especially in his recommendation of the curette.

The work is thoroughly abreast of the times in the subject of operative treatment, both as to indications and technique. In regard to the latter, the illustrations

in Volume I, in connection with methods of suture and hemostasis, and in Volume II, in connection with the treatment of fibrous tumors of abdominal evolution, and laceration of the perineum, should be especially consulted.

The care that has been devoted to classification should meet with the utmost appreciation from all who are interested in this subject, especially as shown in the division of salpingitis into inflammation without and that with cystic tumor. This classification sharply defines the indications for and against operative treatment.

The publishers deserve great credit for the arrangement and appearance of the volumes; the translator for his skill and faithfulness.

APPENDICITE ET PÉRITYPHLITE. Par CH. TALAMON, Médecin de l'Hôpital de Tenon. Small 8vo, pp. 248. Paris: Rueff et Cie., 1892.

THIS is the fourth of the series of little volumes by standard authors issued under the direction of Charcot and Debove. The subject of appendicitis is presented in an intelligent and conservative manner, and a careful reading will illuminate many obscure points appertaining to a pathologic condition, the real significance of which has only recently been recognized. While it is admitted that the cecum may be involved in various inflammatory processes, it is contended that these are never confined exclusively to that portion of the intestine, and that the symptoms occasioned form but a part, and a subordinate part, of the clinical picture. The classical train of symptoms hitherto known under the name of typhlitis is in all cases ascribed to an inflammation of the vermiform appendix. The work deals successively with the historical aspect of the subject, the lesions, the causes, the symptoms, the diagnosis, and the treatment. For therapeutic purposes cases are classified as medical and surgical. The former group includes cases in which the inflammation is confined to the walls of the appendix, or by extension involves but a circumscribed area of the adjacent peritoneum. If there be colicky pains, local and general sedatives are indicated, to be followed by an emollient enema. If evidences of inflammation are conspicuous, a dozen leeches should be applied at the seat of greatest pain, after which a gentle laxative, such as calomel or castor oil, may be administered. Subsequently, intestinal antisepsis is to be secured by irrigation and the administration of drugs by the mouth. If the peritoneum has become locally involved, an ointment of mercury and opium may find useful application. When the appendix has been perforated, with resulting general peritonitis, or peri-appendicular suppuration, surgical intervention becomes necessary. This should be undertaken as soon as it is recognized that the peritonitis is general. If the peritonitis is acute and circumscribed, operation should not be performed before the fifth day, while the best time for operation is between the eighth and twelfth days. In subacute cases incision is indicated as soon as the presence of pus is recognized.

Dr. J. H. McMillan, a graduate of the University of Pennsylvania in 1888, and a former resident physician in the Philadelphia Hospital, died of appendicitis at St. Louis, July 25, 1892.

CORRESPONDENCE.

NEW YORK.

The Board of Health—Sterilized Milk for the Poor—Skin-grafting—Tumors of the Bladder—St. Luke's Hospital.

ABOUT the only stir in medical circles of late has been due to the changes in the Board of Health. As some of your readers may already be aware, the "shaking up" in our police department was speedily followed by a number of important changes in the Health Board, which were of such a nature as to give color to the accusation that they were made chiefly for political reasons. Although it would be no surprise to many to learn that even this department, which is charged solely with looking after the health of our city, is tainted with politics, we have not heretofore been permitted to see so plainly the hand of the "boss," though his influence may have been none the less certainly felt. Here, as elsewhere, it is all-important to be possessed of a "pull," and one's tenure of office, as well as one's chances of promotion, bear a close relation to the strength of this hidden power. I have known one of the physicians connected with the Board to be deprived of his position without any charge of incompetency or neglect of duty, and in a few weeks to be reinstated through the influence which he was able to bring to bear upon the Board; yet in obedience to the demands of a more powerful but equally mysterious power, he was again displaced after a few weeks. The recent resignations, therefore, of such men as Drs. A. Jacobi and T. Mitchell Prudden may be looked upon as well-grounded protests against the methods pursued in the Board of Health. It is but natural that certain other medical gentlemen connected with the Board, who have been interviewed by the newspaper reporters, should not be anxious to make positive statements in regard to political interference, but it is noticeable that they do not deny its probable existence. It is bad enough that medical men in the employ of the city should, as a rule, receive so much smaller salaries than the legal gentlemen in the public service, but it is going altogether too far to allow these offices to be traded for votes. There is, indeed, good cause for apprehension when those who are entrusted with the important duty of attending to the sanitary condition of this large city are selected chiefly with a view to their qualifications as political leaders in their respective election districts. It is to be hoped that when this subject comes before the Academy of Medicine next fall, as it must do, it will receive the thoughtful and manly consideration which it deserves.

At this season of the year there is always more than usual interest taken in all matters pertaining to milk and to infant-feeding in general. Last summer, one or two of the larger dispensaries made an attempt to furnish sterilized milk to the poor, and, while there were many obstacles in the way of the success of this movement, the same institutions have felt sufficiently encouraged with their first experiment to warrant them in repeating it this season. On first thought, this would seem to be a very important and practical charity, and one quite easy to carry out, but experience has shown that the bright dreams of the theorist have not been fully realized. It is undoubtedly a great blessing to the poor in our crowded

down-town tenements to be able to obtain even pure unsterilized milk at a reasonable price, for a large experience among these people has taught the writer that it is well-nigh impossible in many of these districts to obtain good, reliable milk at any price, and hence, those children who are unfortunate enough to be deprived of their precious birthright—breast-milk—are almost universally fed on canned condensed milk.

The sterilized milk furnished by the dispensaries is dispensed in small bottles, one being intended for each feeding. Though the milk may be properly sterilized in the first instance, there are many sources of contamination difficult to avoid. Thus, if dispensed with the cotton plugs in the mouths of the bottles, it is more than probable that the people will tilt the bottles on their way home and so wet the cotton, and perhaps even spill the milk. It may be argued that this is carelessness, and is avoidable, but it must be remembered that the beneficiaries of this charity are densely ignorant, frequently both careless and lazy, and that even with the best intentions, it is very easy to tip the bottles and contaminate the milk when one has to carry a number of bottles of milk, perhaps one or two bottles of medicine, and a sick and fretful baby in the bargain. On the other hand, if the cotton plugs are removed and corks substituted for them just before the milk is dispensed, there is again a likelihood of infecting the milk. It is not difficult, then, to understand that it is easy in actual practice to neutralize all the good supposed to be derived from the sterilizing process.

Speaking of the quality of the milk, I am reminded of an interesting paper read before the Bellevue Hospital Alumni Association by Dr. John E. Allen, in which he described the methods of inspection and analysis in vogue in this city. The districts are frequently changed, as are also the inspectors, and a study of the reports of this department for the past few years shows that, as a result of the rigid inspection and enforcement of the law, there has been a constant and decided decrease in the number of arrests made necessary and in the quantity of milk destroyed each year, as compared with the total number of inspections. As the law requires the presence of a witness when a sample of milk is taken for analysis, or when a lot of milk is destroyed, the inspector is accompanied by a sanitary officer. When the milk is confiscated and destroyed, a sealed sample is given to the owner, and one sent to the chemist of the Board for examination. If any physician in the city has reason to suspect the quality of any milk-supply he has only to report his suspicion to the Board of Health, when a thorough inspection will be made, extending even back to the dairy, and a report sent to the physician.

It is a matter of everyday comment how rapidly modern surgical methods undergo modifications and improvements, and while the conservative surgeon looks askance on many of these changes, and fails to find as much real substantial progress as would at first appear, it cannot be denied that surgery is making most rapid strides, and that many important points in technique are overlooked by reason of its very rapid march. This observation would seem to apply with great force to the method of skin-grafting first brought forward by Thiersch, of Leipzig, in 1874, and which goes by his name. The method attracted no attention at the time of its first publication, and, in fact, it is only within the last half-dozen years that the method has been accepted as a useful surgical procedure. Only a very few years ago the Reverdin method with small skin-grafts was almost the only one in very general use, and, strangely enough, notwithstanding that it was tedious and disappointing to an exasperating degree, it held its place for fully a dozen years after Thiersch published his method. Now, a great change has come over the surgical world, and during the winter I received almost weekly invitations to be present at a "Thiersch skin-grafting."

Among the surgeons here who have given the method extended trial and study there is perhaps no more ardent advocate of it than Dr. Charles McBurney, and on this account it may perhaps be interesting to describe briefly his method of operating. The surface to be grafted is, of course, carefully cleaned, and all hemorrhage checked, and the surface from which the grafts are to be taken, usually the thigh, is rendered thoroughly aseptic. The grafts themselves consist of thin shavings of skin, from two to five inches in length and from one to one and a half inches in width, and they are removed with a sharp razor by a sort of sawing motion. Their removal is greatly facilitated, and larger and more uniform grafts secured, by holding the skin tense and flat by means of instruments made especially for this purpose. These usually consist of a broad flat piece of metal, with a handle and armed with teeth, which are pressed into the skin and held firmly by an assistant. If these instruments are not at hand the assistant may obtain a fair grip on the skin on either side of the field of operation by covering his hands with gloves made of Turkish towelling. As the grafts are removed they are placed in a ½ per cent. salt solution (a dram and a half to a quart). A useful point in the technique, and one sometimes overlooked, is the use of a piece of gutta-percha tissue as an aid in transferring the grafts from the salt solution to the area to be grafted. They may be quickly floated out flat upon a piece of this tissue, and from this slid off upon the wound. When the grafts are all in place, they are covered with strips of gutta-percha tissue, moistened with the salt solution, and over this are placed compresses wet with the same solution. The dressing is completed by covering the compresses with rubber tissue and a bandage. If the surface from which the grafts are removed be dressed in the same way there will be no discomfort, and healing will be complete in about a week; but if the surface be dressed with iodoform-gauze the granulations will creep into the meshes of the gauze, and the healing will be slower and more or less painful. Thiersch advocates changing the dressing over the grafts every four hours for the first few days, but Dr. McBurney has found this unnecessary, and has obtained equally good results by a change of dressing every two days. A dry dressing may usually be substituted after the first week. It will not do to bring the tender grafts in contact with strong antiseptic solutions, for these would destroy their vitality; *aseptic*, not antiseptic surgery is the keynote to success. If the surface to be grafted is covered with unhealthy granulations, these should be scraped away down to the original fatty layer, and then a bandage should be applied until the hemorrhage has entirely ceased. By this method not only are better results obtained than by the older

methods of skin-grafting, but the treatment rarely extends over as many weeks as it formerly did months. One of the most important advantages of the method is the latitude it affords the surgeon in operating upon malignant growths, for with the knowledge that he can quickly heal over a denuded area of almost any size, he no longer hesitates to cut very wide of the disease. It is not improbable that in the course of a few years, through the aid thus rendered by Thiersch's method of skin-grafting, the prognosis in carcinoma of the breast may be very favorably modified.

Another important aid has been rendered surgery by an improved method of examination in cases of suspected tumor of the bladder. In a suggestive communication on this subject, Dr. Frank Ferguson has explained the advantages of the new method, and has described the manner in which the examination is to be made. One has only to recall the numerous instances in which *large* tumors of the bladder are found at the time of operation, when their existence has scarcely been suspected, to comprehend the importance of this subject and to realize that hitherto our methods of diagnosis in these cases have not been what they should be. The method of examination advocated consists in collecting the sediment of the entire quantity of urine voided in the twenty-four hours by filtration through cheesecloth. Small fragments of tissue found in this sediment are then hardened in alcohol, embedded in celloidin, and numerous sections from these masses are then made and subjected to microscopic examination. The examinations should be made systematically and at short intervals. By this method Dr. Ferguson has been able to diagnosticate the existence of tumors of the bladder on several occasions, subsequent operations proving the correctness of his diagnoses. The usual method of collecting and examining the sediments from the urine is entirely inadequate in this class of cases.

The general tendency of our population to move to the upper sections of this city has led some of our hospitals to look for better accommodations in the same quarter. This is eminently proper, for it is certain that in this newer portion of the city they can secure more commodious and healthful surroundings. Among those to make a move in this direction is St. Luke's Hospital. Although the beautiful grounds surrounding the hospital in its present location on Fifth Avenue secure excellent air-space, the city in the immediate vicinity is closely built up, and more than all this, the building is not at all in accordance with our modern ideas of hospital-construction. A new hospital is to be built upon its recently-acquired property, at One-hundred-and-thirteenth Street and Morningside Park, alongside of the proposed Cathedral of St. John the Divine. The site is on high ground, and is a most excellent one from a sanitary point of view, and it is the intention of the hospital authorities to equip the hospital according to the most approved modern methods. It is reported that when the hospital removes to its new home it will be so far from the center of the city that several of the attending staff will find it so inconvenient that they will be compelled to resign. It is also rumored, but I trust that upon this point I am misinformed, that the hospital will open a dispensary. St. Luke's Hospital has always set its face against this sort of thing in the past, and has been so very careful not to infringe upon the rights and privileges of outside medical practitioners, that it has won for itself an enviable reputation in this direction, and it is to be hoped that it is not at this late day going to allow itself to be tainted with the modern dispensary idea. It has always had the interests of its patients at heart, yet it has heretofore been able to give them all needful attention without establishing an out-patient department or a dispensary, and we do not think any good reason has yet been presented for taking such a step.

CHICAGO

Quarantine Precautions—Cholera—Smallpox—Typhoid Fever—Regulation of Medical Practice.

THE Illinois State Board of Health met in this city, July 27th, at the Grand Pacific Hotel. There were present: Drs. W. A. Haskell, *President;* R. Ludlum, Chicago; A. L. Clark, Elgin; B. M. Griffith, Springfield; W. R. Mackenzie, Chester; D. H. Williams, Chicago, and Frank W. Reilly, Secretary of the Board.

The morning session was given up to executive business. An order was entered authorizing the secretary to issue a quarantine notice should Asiatic cholera, smallpox, or yellow fever appear in the United States or Canada.

The notice, as approved by the Board, declares contraband of quarantine any transportation company bringing into Illinois any person suffering from one of the three diseases named, or one who develops any of them within seventy-two hours after entering the State. This declaration having been made, the trains of any railway company or the vessels of any navigation company shall be stopped at the State line or before effecting a landing within the State, and held until inspected by a sanitary inspector of the Board and declared safe.

This action is based upon the inefficiency of quarantine regulations at the seacoast of both the United States and Canada. It is made the duty of all officers of the State and of officers of the peace to enforce the provisions of the order. The secretary was also ordered to submit for the examination of a bacteriologic expert any suspected case of Asiatic cholera in Illinois, in order that, on the one hand, groundless alarm may be avoided, and, on the other, that the presence of the disease may be positively determined at the earliest moment.

Smallpox was reported to have made its appearance within the last few months in Austria, Bavaria, Belgium, Brussels, Ceylon, Chile, China, Cuba, Egypt, England, France, India, Italy, the Netherlands, Poland, Russia, Spain, Sweden, and Switzerland. As a results of its prevalence in England, it has been introduced repeatedly into this country within the past three months. Outbreaks have been reported in New York, New Hampshire, Rhode Island, Pennsylvania, Ohio, Michigan, Wisconsin, Iowa, Nebraska, New Mexico, California, British Columbia, and the Dominion of Canada. Three cases have been imported into Chicago. As a result, the Board is insisting upon vaccination throughout the State. The Surgeon of the Third Regiment of the Illinois National Guard, now encamped at Springfield, has applied for material for the vaccination of his command, and Dr. Dewey, of the Kankakee Insane Asylum, has been furnished 1800 points for use in that institution.

Many of the railroad companies and large manufacturing companies have also undertaken to secure the vaccination of their employés.

The secretary reported progress in the investigation of the Chicago typhoid fever question, and presented maps giving the location of every death by typhoid fever during the years 1891 and 1892 respectively. These maps have been prepared at the secretary's request in the clerical department of the Chicago sanitary district. This study and analysis, together with the study of the sanitary conditions of the various localities, the character of the soil, of the filling-in material, of the sewerage and drainage, of the habitations and of the population, will form the groundwork for the report on which the secretary is now engaged. That there is more or less causal relation between typhoid fever and the character of the water-supply in this city would seem to be borne out by the partial study already made of these maps, but that there are other factors included in the problem is also clear.

A report was made on medical schools by the committee—Drs. Clark, Griffith, and Ludlam. Upon it were based several orders. One demands a supplementary examination in writing before the Board of all graduates from a medical school in existence less than five years.

The rules recommended in the report provide: 1. That any established and legally chartered medical institution shall be held to be in good standing when its requirements for a medical education are those prevailing in a majority of the reputable medical colleges of the United States and Canada; 2. That not less than five years' actual existence and compliance with the first regulation shall be necessary to establish its reputability; 3. That graduates of schools other than those first described may obtain State certificates by passing examination in ten specified subjects before the Board, for which no fee shall be charged; and, 4. That any medical institution which is not recognized by the American Medical Association, the American Institute of Homeopathy, the National Eclectic Medical Association, or by the American Association of Physio-Medical Physicians and Surgeons, as the case may be, shall be declared and held to be not in good standing for the purposes of the Illinois Medical Practice Act.

It was also ordered that the diplomas of the institution known variously as the "German College of Medicine and Obstetrics," as the "German-American Homeopathic Medical College," and as the "German Medical College," 512 Noble Street, Chicago, Illinois, be not recognized by the Illinois State Board of Health, and that State certificate No. 8219, issued April 21, 1888, by the State Board of Health, be revoked and declared null and void, proof having been submitted that the present holder of said State certificate, one Philip H. Simons, *alias* Philip Simon, *alias* Charles Rohning, of Brussels, Calhoun County, in the State of Illinois, is guilty of unprofessional and dishonorable conduct, and any act of practice of medicine or surgery in this State on the part of the said Philip H. Simons, *alias* Philip Simon, *alias* Philip Rohning, is illegal under section 12 of said Act.

Before the adjournment Drs. W. A. Haskell, B. M. Griffith, and W. R. Mackenzie were elected delegates to attend the meeting of the American Public Health Association in the City of Mexico, November 7, 1892.

CODE OR NO CODE?

NO CODE.

To the Editor of THE MEDICAL NEWS,

SIR: You say opportunely and pertinently, "We are confronted with a condition and not a theory."

Permit me to state the condition:

I. The presence throughout our country of a medical profession many times more numerous than required for the good of the country.

II. The presence and active functioning of an absurd and scandalous number of private concerns—medical schools—whose chief object in life is to add largely to this already overfilled profession, regardless of the qualifications, fitness or competency of the men and women so added.

III. The natural and resulting condition that in the public estimation the average doctor is no better than the homeopathist, the eclectic, the clairvoyant, the faith-curer, and not nearly so good as the patent-medicine man, or the bichloride-of-gold healer.

This, at any rate, was the condition prior to 1878. Upon this scene enters the Judicial Council of the American Medical Association, composed of the men chiefly responsible for the condition you and we all recognize, with a recommendation destined to live as the greatest piece of economic charlatanism in history—the code of ethics of the American Medical Association. Whoever subscribes to this code becomes thereby an honorable member of the American medical profession, howbeit, he himself may be unable to read, write or cipher.

In 1878 the people, recognizing the "condition" and the quackish practice of the American Medical Association, led by the great Commonwealth of Illinois, began a very different treatment by adopting State license as a the only means of securing the services of a competent medical profession. Alabama, Florida, Minnesota, Mississippi, Missouri, Montana, New Jersey, New York, North Carolina, North Dakota, Oregon, South Carolina, Virginia, Washington, and West Virginia, for the sake of their people, whose lives and health they desire to protect, have placed similar laws upon their statute books, and in these States the code has ceased to have a *raison d'être*.

The people have made the diagnosis, the people have taken the condition in hand for treatment; meanwhile, the American Medical Association has only to waste time in the matter of code revision as it did in the matter of raising the standard of medical education, and in the near future State license will become the rule in every part of the American Republic. Then revision or no revision will be matters of equal indifference. A really learned and honorable medical profession has no need of *fiat* respectability.

HENRY REED HOPKINS, M.D.

BUFFALO, N. Y.

THE NEED OF A CODE.

To the Editor of THE MEDICAL NEWS,

SIR: Responding to the call of your editorial of July 16th, asking for "short and pithy" communications on "The Proposed Revision of the Code," I would offer a few suggestions on the primary or fundamental questions discussed in your editorial, "The Need of a Code."

For this purpose the profession may be divided into three distinct classes: 1st. Those of "honorable repute and blameless life"—your "Gideon's band," a select, very small, highly intelligent, and cultivated class. 2d. A class quite the opposite in morals, possessing intelligence and culture of a high order, yet baseless, unscrupulous rascals—numerically a very much larger class. 3d. An intermediate class, partaking of the elements of moral character of the other two variously mingled, and in intelligence and education rating below the average of each.

Some, as you have suggested, will maintain that a code is inapplicable to the first two—as being unnecessary in the one instance, and as powerless for good in the other. This I deny. On the part of the first it is a public and continual protest and maintenance of right and honorable conduct, as against the conduct of the second class before the enlightened world, thus helping to give each its mark of distinction. Particularly is this difference between the two classes capable of being made emphatic and pronounced in intelligent communities, where the code has been judiciously circulated among the laity.

If inapplicable, however, to the first two classes for a direct and personal effect upon the conduct of either, I hardly think it can be regarded as such for the third class, numerically the largest of all. The code, as maintained in practice by the first class and published to the world, circulating among all classes of reading and thinking laymen, as well as of physicians, has an *educational and reformatory* effect upon this element in the profession. By this class the code is oftener slighted or violated through sheer ignorance or misapprehension than otherwise. And herein, indeed, lies the fundamental truth in regard to the use and application of all law—the prevention of crime or wrong conduct through the education and reformation of character. And in this connection, and to conclude, would a recitation or two on the code, with a few instructive illustrative lectures before graduation, be out of place in the curriculum of the medical schools? Yours, etc., GEORGE COWAN.

DANVILLE, KY.

NEWS ITEMS.

The American Dermatological Association will hold its sixteenth annual meeting at New London, Conn., September 13, 14 and 15, 1892.

The arranged program will include the following:

President's Address.

"Iodine and Carbolic Acid in the Treatment of Skin Diseases," by Dr. C. W. Cutler.

"Additional Note on the Treatment of Erysipelas, Based Upon a Second Series of Fifty Cases," by Dr. C. W. Allen.

"A Suggestion for Operative Procedure on Erectile Nevi Over Fontanels," etc., by Dr. S. Sherwell.

"How Should Dermatology be Taught?" by Dr. G. H. Fox.

"A Somewhat Unusual Case of Lupus Ulceration of the Nose," by Dr. H. W. Stelwagon.

"Lupus Vulgaris following Exposure to Tuberculous Sputa," by Dr. W. T. Corlett.

"Notes on the Treatment of Lupus Erythematosus," by Dr. J. Zeisler.

Discussion on Alopecia Areata:

1. Are there two forms of alopecia areata; one parasitic and one neuropathic?

2. Is there sufficient evidence to prove the contagious nature of the disease?

3. Does arsenic or any other internal remedy influence the course of the disease?

4. What is the comparative value of carbolic acid, and of other topical remedies?

5. Will epilation of the margin of the patch prevent its spread?

6. What circumstances influence the prognosis of the disease?

"Alopecia Prematura; Its Most Frequent Cause," by Dr. G. T. Elliot.

"Cases of Favus Contagion from the Lower Animals," by Dr. S. Sherwell.

"Some Observations on the Growth of Achorion Schœnleinii in America," by Dr. L. Heitzmann.

"Morphea Atrophica," by Dr. R. W. Taylor.

"Psorospermosis," by Dr. M. B. Hartzell.

"Report of a Case of Adenoma Sebaceum, with Microscopic Drawings," by Dr. J. A. Fordyce.

"Concomitance and Sequence in Skin Eruptions, and the Influence of One Dermatosis Upon Another," by Dr. C. W. Allen.

"The Cicatrices of Syphilis," by Dr. J. N. Hyde.

"An Unusual Case of Syphilis," by Dr. R. B. Morison.

"An Exaggerated Case of Impetigo Contagiosa," by Dr. G. T. Elliot.

"Notes On a Recent Visit to the Leper Hospital at Havana; Leprosy in Charleston, S. C.," etc., by Dr. W. T. Corlett.

"Notes on the Use of Thilanin," by Dr. G. H. Fox.

Third Congress of Tuberculosis.—The Third Congress of Tuberculosis will be held at Paris in the latter part of July, 1893. The following propositions will be discussed: The role played by contagion and heredity, respectively, in the propagation of tuberculosis. Infectious diseases as provocative causes of tuberculosis; the part played by certain of them in the localization of tuberculosis; for instance, gonorrhea in the development of tuberculosis of the testicle, influenza in the development or aggravation of pulmonary tuberculosis. The lulls of tuberculosis; their duration; the means of recognizing their cessation in advance; the causes of recurrence. The various means of diagnosis of bovine tuberculosis, in particular the determination if the inoculation of tuberculin is a certain means of diagnosis of tuberculosis in cattle. The dangers that may arise from the interment of the bodies of tuberculous persons; the wisdom of the substitution of cremation for interment; the necessity for destroying the tubercle-bacilli in cadavers. New modes of treatment, prophylactic and curative, based upon etiology. The utility of the generalization of inspection of meat. A prize of 3000 francs ($750) will be awarded the best essay upon "The Means of Diagnosis of Latent Tuberculosis, Before its Appearance or After its Cure."

CORRECTION.

On the tenth line from the bottom of the second column of page 131 of THE MEDICAL NEWS of July 30th, the figures 108 should have been 103.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, AUGUST 27, 1892. No. 9.

ORIGINAL ARTICLES.

THE SURGICAL CARE OF WORKMEN.[1]

BY ROBERT W. JOHNSON, M.D.,

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY IN THE BALTIMORE MEDICAL COLLEGE.

AT first sight there would seem to be no difference between the surgical treatment of a workman and that of any other man, but I hope to show that as a class workmen have peculiarities and surroundings that merit consideration apart from the universal rules that apply in all surgical cases.

Let us at the outset define what we mean by a workingman. He is the laborer, the man who toils with his hand rather than with his head, and uses his muscles rather than his brain. He follows rather than gives directions, and taking the analogy from the Old Testament, is a "hewer of wood and drawer of water." As to his surroundings nothing definite can be said. He may live in a fairly comfortable two-story house, or on a floor in a tenement, or, if a single man, in a shanty near his work. He is paid by the hour or day, and he earns from seventy-five cents to three dollars *per diem*. He forms the vast majority of the body politic, shapes legislation by his aggregate vote, in the main is endowed with some education, his share of common sense, and more than his share of temptation and vice. From the nature of his employment he is liable to injury more than any other class. He is exposed to vicissitudes of weather, the debilitating effects of heat, and cold, and wet, as well as the more salubrious surroundings of outdoor life, or the unhealthy prison atmosphere of dust-laden manufactories.

Except as these conditions influence him as a surgical patient, we must must not take time to consider them, and though his face is familiar to every hospital physician, covered perhaps with the grime of the furnace, or with the twilight glow of hectic, so soon to sink into the night, we must limit our view of him to the surgical aspect. He is ever with us, not so much as the victim of surgical disease as of accident. He is no more liable to tumors than his fellow-man at the desk or bar, not so liable to stone as his superior on the bench; but dealing with machinery of immense power, or endeavoring to overcome the forces of Nature, whether of gravity in the quarry or of cohesion in the mine, or storm at sea, he is torn asunder, and presents all the varieties of shock and laceration, contusion, and often sepsis, that are possible. Not only are these enemies at work, but from poor surroundings, miserable food, bad inheritance, he often brings with him the trail of the serpent left by the sirens of the bawdy-house and bar-room. Perhaps he is a moral family man; here virtue does not bring its own reward. He is depressed with the outlook for his family in case of death, or their want during his forced absence from work. I have seen cases far more anxious on this score than from any danger to which they were personally exposed.

Does the laborer have any inherent advantages to offset this catalogue of detriment? A few, but hardly compensatory. As a rule, the laborer, especially employed out of doors, has a stronger constitution, is less nervous, not so high-strung as the mind-worker. He bears pain with Spartan fortitude, his imagination is not so vivid, and he anticipates less acutely; he is often stoical, rallies easier, is not effeminate, but essentially manly. He has what is commonly called "grit." To him, moreover, the chances are that hospital fare is a treat he does not have at home. His stomach is stronger, and he retains his nourishment better than the members of the pampered class. He feels the transition from activity to bed, but soon gets acclimated. Here let me insist on the immense advantage hospital treatment presents to the laborer over his home caretaking. Besides the greater creature-comforts, such as bed, appliances, regular meals, and systematic treatment, he is relieved of the continuous presence of anxious and solicitous faces, the gossip and the universally bad prognosis of neighbors, who never saw a case like his recover, the continuous trial of new specifics suggested, from a poultice of cowdung to inunctions of holy water. In the hospital he has the systematic care of the trained nurse, cool, used to such conditions, the watchful observation of the house-surgeon, noting real changes, and notifying the surgeon-in-charge, if necessary. In a word, the laborer, though he often refuses the aid, throws away at least 25 per cent. of his chances of recovery by going to the loving but inexperienced care of home rather than the hospital, a place where those concerned make it their business to get their cases well.

[1] Read before the Maryland Medical and Chirurgical Faculty, April 26, 1892.

Let us look incidentally at the practical question, "Who is to support the laborer during the time that he cannot earn his daily bread?" It would be impossible to enter into the politico-economic question now seeking solution on a large scale throughout the world, especially in Germany and in England, as to the pension and insurance of the workingman. That there is no definite answer yet agreed on as the result of national experiment goes to show that the ultimatum is not yet reached. Suffice it to say that the modes generally in vogue are:

1. By means of public charity. The support by State or individual munificence of beds in large hospitals. While this must ever remain, to a certain extent, it presents disadvantages (*a*) in that the laborer gets no help when at home; (*b*) he feels that he is a charity case, and it has a tendency to pauperize him and diminish his self-respect; (*c*) he is under these circumstances, justly or unjustly, the object of perfunctory care, the subject of more or less experiment in the trial of new drugs or appliances or methods, for in this way remuneration for the outlay in taking care of him is justly or unjustly considered; (*d*) unfair advantage is taken by persons able to pay.

2. At the man's personal expense. This, in a vast majority of cases, is impracticable. His family uses up all he has when he is at work. It is not possible to meet the additional charge of from three to five dollars per week when he is out of employment, and, if treated at home, some essential drug or nourishment may be curtailed by reason of the rapid disappearance of the fund laid up for a rainy day, or what soon becomes a rainy season.

3. The employer looks after the men injured, pays their hospital expenses, and allows them part pay during their illness, when that illness is contracted in the line of duty, or the employer feels that his firm is in some way responsible for the attack. This method has some advantages, especially to the capitalist, in that a man who receives kind treatment at the employer's hands is less inclined to litigation than when he is thrown on charity or his own resource, but it partakes of the charity element in that the laborer pays nothing for his own maintenance. Again, his relief is spasmodic; he is not sure that if taken ill, unless injured, he will obtain any help, and we all know how much more frequent illness comes than injury.

4. The last method I will mention is that of a mutual insurance concern among employés. This is in vogue on some of our great railroad systems, and has much to recommend it. Men pay while they are well a certain proportion of their earnings into a common treasury—say a dollar a month, an amount hardly appreciable at the time, a mere *pour-boire*, which is, perhaps, rescued from that untimely fate, and they obtain a certain amount per week when ill or injured; and though they may have been in the association only a few days they can feel that they have complied with its requirements, and, if laid off by accident, are really entitled to the benefits, or rather the rewards of their foresight. In my mind this method has the one objection that it does not associate the employer with it.

My opinion is that the best way to look after the workmen in large companies is by a partnership between labor and capital in taking care of the sick. Let each member of that partnership, the firm and the laborers' benefit association or insurance, pay half the expense of taking care of the ill and injured in employment. This begets good feeling without so much expense on the part of the employer and insures the workman against illness as well as injury, without the idea of pauperism for the workman. I think in this way litigation may be curtailed as much, if not more, than by the method in which the employer pays all; for the workman who brings suit against the insurance association feels that he is not only suing his employer but his fellow-workman as well. My experience with men who have thus subscribed for their own maintenance leads me to believe that it is not irksome—and that, too, in a class the least provident and the least amiable, *i. e.* the common sailor of the merchant marine and oyster boats; but I cannot go further into this interesting question.

Supposing the sinews of care-taking have been provided and we have our patient in hospital, what are the surgeon's duties then? They naturally fall under two heads—his duty to the laborer-patient and his duty to the company that employs him. They are so closely associated that I shall not attempt to differentiate them.

I think somehow the operating-table is a more democratic platform than the post-mortem table. Nowhere is a man "a man for a' that" more than when you are about to cut him, whether he be pauper or millionaire. His robes of office or his overhauls have been stripped off, and he lies before you clothed in humanity, appealing to your sense of human kindness as well as your professional skill. He needs your kindness, your cheer, your sympathy. Treat him as a intelligent being. State facts to him, and let him decide. It may take a little more persuasion or a little clearer advice. It may require a little more patience than with his more cultivated brother of the Stock Exchange, but let *him* decide, and act on his decision after you have explained the circumstances.

Avoid force, or intimidation, or coercion. The chances are that, since so much of surgery is mechanical and common-sense, you will find your

Hodge more amenable than your clerk. On your own account never operate without his permission, except in emergency or his inability to give it. Do only recognized operations, with well-tried methods, that would acquit you before a jury of any desire to experiment; for this workman, with all his good qualities, is susceptible of a desire to obtain damages from somewhere, when he recovers and has the slightest pretext for asking them. For the same reason, let your prognosis be guarded. Do not be too enthusiastic, and while I consider it a species of highway robbery to steal his or his family's sleep by causing undue anxiety, do not be too roseate about results.

Shock is one of your greatest adversaries. The force attendant on injuries to workingmen makes this a prominent feature of their lesions. I have found that hypodermatic injections of morphine and atropine, strychnine, and heat, hot coffee internally, or hot milk punch, very effective in tiding over this rock. Wounds and compound fractures I have disturbed as little as possible. Rest is to be secured by splints, and asepsis by the application, over blood-clot formation, of iodoform and mild bichloride gauze, a stock of which, together with other emergency necessities, cots, etc., I have distributed in various available locations about the works.

One cannot be too conservative about amputations. It is marvellous how much injury a hand or foot may receive, and yet come out under aseptic treatment a useful member. I have found that patients, without exception, prefer to preserve a heel or a small portion of the foot to amputation higher up the leg, and my experience justifies them in their selection, as they are able to stump around and have artificial feet made that are as comfortable and convenient as a false leg would be. It may take longer to heal than the higher amputation, and require more nursing; but I am not one of those who would care to fly so in the face of the patient's prejudice unless I saw commensurate advantages undisputed.

There is, I know, some difference of opinion in regard to the advisability of the mediotarsal or Chopart's amputation.

Jacobson[1] says: "The value of the operation has been a good deal disputed."

Treves[2] says: "The value of the operation is open to serious question."

Stephen Smith,[3] quoting Hudson, says: "The tarso-metatarsal and mediotarsal amputation will not hereafter be performed when there exists intelligent and humane regard for improved surgery and the greatest benefit of the sufferer."

[1] Surgical Operations, p. 958.
[2] Manual of Operative Surgery, p. 433, vol. i.
[3] Operative Surgery, p. 856.

On the other hand, it has the valuable commendation of such men as Agnew,[1] who says: "I do not think the danger of the cicatrix drawing down is an insuperable evil."

Bryant[2] says: "Chopart's amputation is an excellent and valuable operation, and should be always be performed in preference to any higher measure."

Erichsen[3] says: "The result of this operation is extremely favorable, the patient, by the aid of a properly constructed boot, being able to walk, and even to dance."

Moullin[4] says: "The stump left by the operation is, in many cases, exceedingly good."

"Mr. Hancock has collected 152 cases of Chopart's amputation, of which 120 resulted in recovery, with serviceable stumps, 2 in reamputation, 11 in death, while in 15 the result as regards utility of limb was uncertain, and in 4, though life was preserved, the stumps were not satisfactory."[5]

Coming to conservative operations on the hand, there are two that demand a passing word in this connection and about which there is more or less controversy among surgeons.

The first is the question of amputation at the joint between the first and second phalanges of the little, ring, and middle fingers. The opposition to this amputation arises from the fact that there will be no flexor attachment to the remaining phalanx, which will stand out as an obstacle when the other fingers are flexed.

Thompson,[6] in a valuable contribution on the "Surgery of the Hand," says:

"In amputation, to remove as limited a portion of the finger as possible is, in the main, proper, but exceptions should be made to this rule in amputating the middle and ring fingers, especially among the laboring class. Experience satisfies me that among that class it leaves the most useful hand to remove the middle and ring fingers at the metacarpo-phalangeal articulation, as a stump from amputation in the continuity or at the phalangeal joint, the flexor and extensor muscles having been severed, renders the hand comparatively useless, and is, therefore, much in the way of the laborer in performing his work. I am more convinced that it gives a better result to amputate those fingers at the knuckle-joint."

In the discussion provoked by this paper Dr. L. McLane Tiffany stated that:

"It is true that if amputation is made through the first phalangeal joint a useless stump is left; but there is no earthly necessity, as far as I can see, why the tendons which naturally pass over the joints should not be made to have an attachment after

[1] Surgery, vol. ii, p. 357.
[2] Practical Surgery, p. 1019.
[3] Surgery, vol. i, p. 105.
[4] Treatise on Surgery, p. 1149.
[5] Ashhurst's Surg., p. 126.
[6] Transact. Amer. Surg. Assoc., vol. ii, p. 188, *et seq.*

amputation at the joint. In other words, when the flaps are made, the stitches which unite the skin can also be passed through the tendons and their sheaths. I have done this for a number of years, and I have never failed, as far as I can remember, to secure quite as good movements of the second and third fingers as if Nature had originally made an attachment there for these tendons.'[1]

Dr. Maclean stated that he has hardly ever seen a patient who had such movement of a stump of this form. Agnew, Erichsen, and Jacobson disparage the operation. Moullin advises it under certain conditions.

My own practice in this regard is to consult the man's wishes, at the same time telling him that it is possible to correct the failure of the stitched tendons, flexing the phalanx by a subsequent operation, with little or no risk. As a rule, the decision is in favor of the phalanx, and, so far, I have had no complaints.

The last specific operation to which I shall refer is one to which the question of utility vs. esthetics is more marked—namely amputation at the metacarpo-phalangeal, or knuckle-joint. Shall the head of the metacarpal bone be allowed to remain, or shall it be excised in order to conduce to the symmetry of the hand. Authorities again differ.

"In a laboring man it is wise not to remove the head of the metacarpal bone."[2]

"When, however, the patient's employment is one in which great strength and breadth of hand are required, and when appearance is of little consequence, the head of the bone may advantageously remain."[3]

"The hand may be rendered more symmetrical by the removal of the head of the metacarpal bone, but the gain of symmetry is more than counterbalanced by the loss of firmness and strength."[4]

"In all these disarticulations the head of the metacarpal bone should be spared whenever possible."[5]

"When strength has to be considered rather than appearance, the head of the metacarpal bone should be left."[6]

In these cases in laboring men I invariably save the head of the metacarpal bone if possible.

Asepsis is so difficult to maintain or to secure in hands and feet and scalp begrimed with furnace smut and driven in by contusion and laceration, that we have in the blood-clot treatment of Schede a great advance in accident-surgery when organization can take place in the deeper parts before pus-organisms have gotten a foothold and resistance is made and the field occupied by Nature's methods in advance, suppuration being discounted as it were.

To reduce the armamentarium of the operator, when called to see workmen at their homes and when there are not the same facilities for aseptic work as in the hospital, I have devised a kettle containing trays, which, fitted with the respective instruments and dressings, may be boiled while the patient is preparing. I boil everything, using silk ligatures and sutures in proper lengths wound on glass. I have substituted for the rubber tissues (which balked me in this respect) the thin scales of transparent mica to protect the clot, and which stand any amount of boiling or acids or bichloride. They, as well as the other essentials, a wash-boiler, with meat-dishes or plates to hold the trays, may be obtained in any house where there is a stove. The dressings after boiling should be impregnated with a mild bichloride solution, for, while the boiling renders them aseptic, it does not make them antiseptic. I feel competent in an emergency now to venture, with these simple appliances, *i. e.*, a pocket-case, a few tablets of bichloride, into a laborer's house and find those articles used in his domestic life which will give me material assistance in antiseptic work, and render suppuration more and more inexcusable, even in back country districts or with druggists out of sight. I need not dwell on the great value of pressure in eliminating dead spaces by elastic cushions of gauze, supplemented by lino, which when dry forms a splint.

In the interest of the company have the testimony of eye-witnesses taken at the time of the accident, so that you can present that to a jury if necessary, and not be dependent on garbled, forgetful, or partial memories should the case come in court. Inform the man's family gently of his condition from time to time, see him every day and impress him with your sincerity and attention. Avoid the publication of accidents in the daily newspapers as far as you can, as there is a "shyster" in law as there is a "quack" in medicine, who is on the lookout for damage suits for a contingent fee, and though I have known the name in print to act as a temporary balm to the friends of the injured man, and perhaps to the sufferer himself, I think it best for the interest of all concerned that matters move on without the interference of the public. So, do not court the reporter in the hope of seeing yourself advertised. You may often be asked by the patient whether or not, if you were in his place, you would sue for damages. Decline to be anything but the surgeon in charge of the case; do not oppose him, or he will think you in league with the company. Simply tell him that you are his physician and not his lawyer, and he must decide. Should your patient obstinately refuse to follow your surgical

[1] Loc. cit., p. 226.
[2] Bryant's Surgery, p. 1013.
[3] Erichsen's Surgery, vol. i, p. 90.
[4] Ashhurst's Surgery, p. 118.
[5] Treves's Man. of Oper. Surg., vol. i, p. 332.
[6] Jacobson's Surgical Operations, p. 23.

advice, it is well, as protection to yourself and your employer, to obtain a *written* acknowledgment of your proposition and his declination, or, if he declines to give you that, get the corroborative testimony in writing of several fellow-patients in regard to your offer and his obstinate refusal. There is no comfort in his verbally declaring that he will take the responsibility of his act; see that you are protected in black and white.

All these precautions and cares, however, will sometimes be of no avail, unless the company you represent second your endeavors, not with parsimonious, penny-wise policy but in the same spirit and liberally. This they can do if they contribute to the care of the injured by meeting your suggestions cheerfully, going to the necessary expense in necessities, and, more than that, wisely allow the injured man some privileges and actual money, say half-pay, while sick, in addition to his hospital cost, or if the company and men contribute equally, doing it cheerfully and punctually. Then, in the after-treatment, they can do a great deal toward smoothing matters over—an easy position for awhile to an injured man, where he can earn his living without too much hard work, gradually getting him back as he improves into his old or a better position. Men appreciate the opportunity to earn a living, in my experience, far more than they do a money benefit. A little attention on the part of the heads of the firm, a casual inquiry of a man how he is doing, all these little thousand and one ways of showing that the employer does not look on his laborer as a machine, to be cast into the gutter when broken or even useless, bring about the *entente cordiale* so requisite in the harmonious working of large bodies of laboring men.

Should, in spite of the methods mentioned, a man who has been hurt insist on damages, except as far as your prognosis is asked, you have nothing to do. With the law you are not an expert; to your employer you can only say what is your unbiased opinion as to the extent of damage done. You have nothing to do with the placing of responsibility on either party, and your testimony should be as impartial as if you had been called as an expert in a hypothetical case. You have no right to take sides in your testimony; though, as an employé of the company, you can suggest questions to the attorney for the possible confutation of the plaintiff's medical testimony. In the last connection, *i. e.*, lawsuits, I am glad to say, I have but little experience.

During the last five years I have been connected as surgeon with some of the largest manufacturing and labor-employing concerns in this State. In one alone, the medical department has treated over five thousand cases of accident and illness, ranging from fracture of the vertebræ, with long-suffering life in the hospital, to contusions of the little finger. In that list may be found death, loss of sight, disfigurement, loss of limbs, double fractures, in fact, everything nearly that can constitute an injury or ailment, and, yet on this system described, with careful and kindly work in the same line by my assistants (many cases of small injury I never see), together with the hearty coöperation and liberal seconding I always cheerfully get from the heads of the firm, we have treated, as I said, five thousand and more cases, and there is yet the first suit for damages to be tried against this firm. I do not claim it as my work, nor do I say that it is altogether that of others. We have done it conjointly, and I feel a certain amount of pride in pointing out the modicum I had in bringing it about.

THE INFLUENCE OF THE NERVOUS SYSTEM ON CERTAIN DISTURBANCES OF THE SKIN.[1]

BY A. RAVOGLI, M.D.,
OF CINCINNATI, O.

IN the skin, more than in any other organ of the human body, the alterations of the nervous system presiding over the nutrition of the tissues are readily apparent, because externally located and accessible to the eye. The nutrition of the skin, like that of other organs, is entirely subordinate to certain nervous filaments, which regulate the tonus of the bloodvessels, and are therefore called vasomotor nerves. The disorders of the nutritive processes of the skin clearly manifest the derangement of the nervous elements connected with the affected region of the skin, which really constitutes the effective cause.

The arteries and the veins are subject to variations in caliber not only in a passive way, from their elasticity, but also actively from the presence of muscular fibers in their coats. The muscles belonging to the organic system are exclusively under the control of the vasomotor nerves, which are principally supplied by the sympathetic nerve from the whole extent of the spine and from some portions of the base of the brain. It is well known that when one of these nerves is cut through, the temperature of the related part of the body rises, the arteries become engorged, and the pressure of the blood is augmented. On the contrary, the application of a galvanic current to the same nerve produces diminution of the caliber of the arteries and the temperature falls. This shows that the influence of the nerves on the bloodvessels is persistent, and through them the muscles of the vessels are continually kept in active tension. In the arteries the contractility is

[1] Read in the Section of Dermatology and Syphilography of the American Medical Association, at Detroit, June, 1892.

much better developed than in the veins, but in the small veins and in the capillaries, by lack of muscular fibers the changes in their caliber are only passive. The organic contractility of the arteries is not in relation with their pulsation, and in consequence their contractile power is the regulator of the pressure of the blood. These nerves control the nutrition of the different organs by increasing or diminishing the supply of blood, according to the energy and the activity of the organ.

The action of the vasomotor nerves on the muscular fibers of the bloodvessels explains many affections of the skin attended with inflammatory symptoms and changes in its nutritive functions. These affections have nothing to do with the real inflammations of the skin, and in most cases they are the result of some constitutional disorder, often of the presence of a poisonous substance acting upon the center of the vasomotor nerves. Exanthemata and many erythematous eruptions belong to this group and form a class named by Auspitz angio-neurotic eruptions.

It is not this kind of skin-affection that forms the basis of this paper, but I wish to speak of some disturbances in the nutritive functions of the skin manifested by intrinsic alterations of its histologic elements. There is no doubt that the nerves regulating the circulation, and presiding therefore over the nutrition of the skin, have a close relation with the sensory nerves, as tropho-neurotic disturbances are often consequences of irritation of the sensory nervous fibers, or are accompanied by alterations of sensibility.

In most cases we find that the lesions of the skin are accompanied by symptoms emanating from the nervous centers.

Miss V. B., a brunette, twenty-two years old, for about six months had noticed a peculiar eruption on her body. She appeared to be in good health. Menstruation was regular. When four years old she began to suffer with chorea, which lasted for several years. At the age of twelve she had epileptic attacks, which were repeated from two to three times a week. These subsided, but she remained subjected to attacks of dizziness and cephalalgia. She presented an eruption consisting of macular spots from the size of a dollar to that of the palm of the hand, of white, ivory color in the middle, surrounded by edges uniformly pinkish-red. The white of the spot presented the characters of a scar. The skin could not easily be raised between the fingers, being rather hard. The pinkish-red edges were not elevated above the level of the skin, and displayed no inflammatory manifestations. One spot, as large as the palm of the hand and somewhat oblong, was located on the right hip-joint. Another spot was on the abdomen, extending down to the genitals. Another spot, somewhat roundish, was on the left thigh. There was no pain or itching, but the spots presented a kind of numbness which caused some discomfort. The sense of touch on the spots was diminshed.

The case was one of liodermia neuritica, Glanzhaut, glossy skin, recently described as striæ or maculæ atrophicæ. Descriptions of this affection have been given by Cantani,[1] Feré et Quermonne,[2] Touton,[3] Buchwald,[4] Bradshaw,[5] Troisier,[6] Bouchard,[7] Wilks,[8] Sheperd,[9] and Ohmann-Dumesnil.[10] Almost all authors are agreed that the origin of the striæ or maculæ atrophicæ must be found in some tropho-neurotic disturbance. Sheperd and Ohmann-Dumesnil have each reported a case of liodermia consecutive to typhoid fever, and the latter ascribes the disturbance of the skin to the depressant action of the severe disease.

In my case disorders of the nervous system had been present; the patient at first suffered with chorea, then with epilepsy. Furthermore, the alteration of sensibility was very pronounced. I was not allowed to make a microscopic examination of the abnormal skin. There is no doubt, however, that the affection was the result of a disturbance of the nutrition of the connective tissue of the corium causing the peculiar atrophy by a defect in the action of the trophic nerves.

A not less interesting condition of the skin is the atrophy of the pigment, leukodermia, which I have likewise found associated with affections of the nervous system.

Not long ago, Mrs. A. T., thirty-nine years old, in rather poor health, sought relief on account of some white spots upon the face and trunk. She was of dark complexion, had dark hair, was very delicate and nervous, and her mucous membranes showed her anemic condition. Her appetite was usually not very good, and her bowels rather constipated. Menstruation was scanty and painful. She had at several times been under treatment for melancholia. She often had hysterical attacks, in the course of which she noticed a white spot on the left side of her chin, consisting of three or four coalescent maculæ, each as large as a quarter of a dollar, and extending from the left angle of the mouth toward the neck. The naturally dark complexion of the patient contrasted strongly with the white color of the spots. Other irregular spots could be seen on the neck and chest, on the arms and hands The spots were accompanied by no symptoms whatever, no itching, no pain, no desquamation, but in the affected regions

[1] Il Morgagni, 1881.
[2] Progrès Médical, 1881.
[3] Deutsche med. Wochenschrift, 1886.
[4] Vierteljahresschrift für Dermatol. u. Syphil., 1883.
[5] Brit. Med. Journ., 1888.
[6] Bulletin de la Société Médicale des Hôpitaux, 1888.
[7] Bulletin de la Société de Chirurgie de Paris, 1886.
[8] Guy's Hospital Reports, 1861.
[9] Journal of Cutaneous and Genito-urinary Diseases, 1891.
[10] Monatshefte für prakt. Dermatologie, 1891.

there was a great diminution of sensibility; there was likewise analgesia on her fingers.

According to Jacob Halpern,[1] in the regions of the human skin abundantly furnished with pigment the granules are mostly contained in the deepest layers of the rete Malpighii, and there are ramified ameboid cells which are connected with the blood-vessels and the nerves. The pigment in the white race consists of small granules of dark-yellowish color surrounding the ramified cells; no pigment-granules are found free in the layers of the epidermis without accompanying those cells which supply the pigment. This observation affords us the explanation that when the nutrition of these ramified cells is withdrawn their protoplasm is reabsorbed and they can no longer supply pigment-granules, and the pigment is reabsorbed by the cells of the rete. Pigment is nothing more than the result of a chromatopoietic function of these ameboid cells, which take up the blood-corpuscles or their contents, changing them into pigment, which is distributed in the layers of the rete and the deepest layer of the epidermis. In the appearance of the white spots of leukodermia we can see some relation with the distribution of the bloodvessels and the nerves in the affected region.

The neuropathic origin of leukodermia is supported by the analogy with lepra. In some cases of lepra we have leukodermia in the form of white spots, on the neck and on the extremities, and in the middle of the white spots sensibility is remarkably diminished. As lepra stands in such conspicuousness in relation with disease of the nervous system, it cannot be doubted that the affected nerves are responsible for the disappearing of the pigment in the affected regions by the disturbed action on the blood-vessels.

Another form of disturbance of the skin that I have encountered in association with nervous disorders is sclerodermia.

E. S., a German girl, eight years old, in infancy suffered with pneumonia, cholera infantum, and eczema, from which she recovered. About four years ago she began to be nervous and restless. She could not sleep, and cried without cause. At times she suffered with neuralgic pains in the legs and arms, and at times a severe itching sensation caused her to scratch and abrade the skin with her finger-nails. The parents remarked that her legs were getting thinner, and that the skin of the knees and calves was so hard and inelastic that the girl could walk only with great difficulty. Similar changes were observed in the arms and hands, until the girl could not move her limbs, which were perfectly stiff. The itching was so intense that the child could not get an hour's sound sleep. When I saw her she was rather well developed. Her face only presented some freckles in the region of the nose and cheeks. The hair was rather abundant, and of light-chestnut hue. Nothing abnormal was to be seen on her neck. The arms were thin, and the skin was so hard that the arms and hands could not be moved. The skin had a dirty-yellowish color, resembling parchment, from the deltoid region to the fingers. The elbow was stiff, and could not be bent. It was not possible to raise a fold of the skin, and it seemed that bones, muscles, and skin, formed one mass, like a piece of wood. The epidermis showed deep furrows, and especially on the hands around the wrists there were fissures from the breaking of the skin by attempts to bend the hands. No movement at all was possible in the fingers, which remained stiff and semiflexed. The pigment was unequally distributed on the affected surface, so that the color varied, resembling marble. There was a large area of sclerotic skin on her abdomen, extending from the left hypochondrium in a band to the genitals, which were also involved. The legs were in a similar condition. The right was the worse, and had lost its shape. It was stiff from the hip-joint to the toes. The left leg was affected to the knee, the thigh being almost free. The feet, like the hands, were hard and stiff, with some fissures around the calf from attempts to walk; locomotion was difficult and painful. The sensibility of the affected skin was greatly diminished. Itching was, however, marked, and the skin was excoriated from scratching. The skin was dry, and the perspiration was absent from the body, and only present on the head and face. The body temperature, taken in the affected axilla, was only 97.7°.

In this case there is no doubt that not only was the skin deeply affected, but the muscles had also undergone a certain degree of atrophy, as the limbs were deformed and movement interfered with. Changes in the muscular fibers in cases of sclerodermia have already been recorded by Thibierge,[1] who expressed the opinion that the affection of the skin is secondary to the affection of the muscles. In our case, however, the relation seems to have been the reverse. The atrophy of the muscles seems to have been secondary to the affection of the skin.

I am sorry not to have been able to make microscopic investigation of the affected skin, as this was refused by the mother of the girl. The disease seems to have had its seat in the connective-tissue elements of the corium and of the subcutaneous tissue. The panniculus adiposus was completely gone, from atrophy of the fat-cells, and the elastic fibers were greatly increased. The bloodvessels and the lymph-spaces were compressed by the accumulation of connective-tissue elements, which produced also the atrophy of the glands of the skin.

Here we have three affections of the skin that display an intimate connection with diseases of the

[1] Ueber das Verhalten des Pigmentes in der Oberhaut des Menschen. Monatshefte für prakt. Derm., 1892.

[1] Rev. de Médecine, No. 4, 1890.

nervous system. The first case, one of macula atrophica, was in a woman who was affected with chorea, and later with epilepsy; the second case, one of atrophy of the pigment, was in a woman, affected with hysteria and melancholia; the third case was in an extremely nervous girl, affected with neuralgic pains. There is nothing new in this proposition, but I only want to strengthen what has been already observed. Duhring[1] refers to atrophy of the skin in consequence of alteration of the nutrition in progressive muscular atrophy. Weir Mitchell[2] has reported cases of injuries of the nerves, with atrophy of the skin, and of the subcutaneous tissue. Robinson[3] is of the opinion that glossy skin may result from wounds. McCall Anderson[4] refers to a case of atrophy of the skin which followed an injury of the supraorbital nerve, and gives as the cause of the atrophy of the half of the face that took place the irritation of the sympathetic of the neck. Brunner[5] found atrophy of the skin of the left side of the face in a female epileptic.

Considering the condition of the nervous system in our patients, it appears that the cause of the disturbances of the skin have to be found in the nervous system. The action of the nerves is to regulate the functions of the bloodvessels. The alternations seem to have been especially in the sympathetic system, which presides over the vegetative functions, but we cannot absolutely assert that the nervous centers are not implicated in the production of these affections. Fibers from the brain and spine pass through the ganglia that constitute the origin of the sympathetic and make it an independent system. The fibers emanating from the ganglia are not only motor, but also sensory. This is made manifest when irritation is applied to a region under the control of the sympathetic nerves; movements are produced in the organs supplied from that group of nerves. The ganglia are not organs of movement, but are organs through which reflex action is accomplished without the consciousness of the brain. The stimulus applied to the sensory fibers causes a reflex movement through the ganglion, the sensation remaining in it without causing any feeling; but when the stimulus becomes an irritation, its effect does not remain limited to the ganglia, but is carried to the spine and to the brain, giving rise to pain.

Many disturbances of the nutrition of the skin exist without producing any sensation, remaining strictly limited in the zone under the control of the sympathetic. This we see when the disturbance does not deeply affect the texture of the skin, as in our cases of leukodermia and liodermia; but when the results of the affection are more profound, as in sclerodermia, then some sensation is aroused, as in our case, which was attended with neuralgic pains and itching. There is no doubt that some of these affections, by their topographic distribution in the skin, follow the ramifications of the nerves lying underneath, or rather follow the lines of division of the cutaneous nerves, as indicated by Voigt. In nevus linearis, ichthyosis cornea, ichthyosis hystrix, we find the disposition of the disease in the course of the underlying nerves. In one case of ichthyosis hystrix, in a boy eight years old, that came under my observation, the disease so closely followed the course of the sciatic and crural nerves that it looked as if some one had drawn the lines with the pencil. In many cases of anomalies of the pigment, as in nevi pigmentosi, either congenital or acquired a short time after birth, the lines follow the ramification of the nerves of the affected region with wonderful closeness. Kaposi refers to two cases of nevi verrucosi, in which the verrucæ were seated accurately in the course of the sciatic nerve.

Neumann[1] refers to a case of nervous nevi, in which the pigment-hypertrophy and warts were distributed from the gluteal region to the toes of the foot, in perfect correspondence with the nervous ramifications of the leg. The disposition of these maculæ, or hypertrophies of the epidermis, corresponds with that of the underlying superficial nerves, but does not exactly follow the deepseated nerves. According to Philipson,[2] the skin-disturbances follow rather the cutaneous nerves, maintaining the lines of Voigt. The difference of direction between some lines of altered skin and the direction of the nerves would be explained by the physical growth of the body, the affection occupying the original course of the nerves.

The nerves that control the nutrition of the skin are not distinct from others, but are in connection with motor and sensory filaments. In consequence of this fact Baerensprung considered alterations of the skin of this kind as the result of a disturbance of the spinal nerves. The same nervous origin applies to nevi vasculares, in which the spots represent areas corresponding to the distribution of the nerves of the region. Nevus vascularis of the face indicates that originally, in the embryo, the trigeminus was affected, with dilatation of the capillary bloodvessels as a result.

In our first case we have two areas of the skin affected with atrophy in an oblong form. There was at first a small spot of a reddish-violet color, which gradually became white and atrophic in the center,

[1] Treatise on Diseases of the Skin, 1881.
[2] Injuries of the Nerves and Their Consequences, 1872.
[3] A Manual of Dermatology, 1884.
[4] Treatise of Diseases of the Skin, 1887.
[5] Physiologie und Pathologie des Sympathetischen Nerven-Systems, 1879.

[1] Oesterr. Jahrbuch für Pädiatrik, 1877.
[2] Monatshefte für prakt. Dermat., 1806.

showing the intense color in the periphery. The intense redness was the result of stasis due to the diminished tonus of the bloodvessels, the vasomotor nerves having lost their control.

In the second case, we have atrophy of the pigment following the course of the inferior maxillary nerve of one side and on the left arm.

In the third case, there were profound alterations of the skin involving the corium and the subcutaneous tissue, due to the condition of the nutrition of the limbs and body.

All three affections appeared and slowly progressed in persons affected with nervous symptoms, as anesthesia, analgesia, hyperesthesia, etc.

I believe that liodermia, leukodermia, and sclerodermia, although different affections, are closely related. They display an affinity for persons with an altered condition of the general nervous system.

They are the result of an affection of the nerves, either central or peripheral. In a word, they are the result of an alteration in the nutrition of the skin, through an altered condition of the trophic nerves.

In conclusion, I would say that the difference between leukodermia, liodermia, and sclerodermia, is only one of degree, produced by lack of nutrition, affecting in the first the ameboid cells of the Malpighian layer, which furnish the granules of the pigment; in the second, affecting the connective tissue of the superficial layer of the corium; and finally, in the third, involving the connective tissue of the corium and of the subcutaneous tissue.

INTUBATION VERSUS TRACHEOTOMY.

Being a Study of 858 Cases Operated On at the Boston City Hospital.

BY ROBERT W. LOVETT, M.D.,
OF BOSTON;
OUT-PATIENT SURGEON TO THE BOSTON CITY HOSPITAL; ASSISTANT SURGEON TO OUT-PATIENTS AT THE CHILDREN'S HOSPITAL, AND SURGEON TO THE INFANTS' HOSPITAL.

THE operation of intubation for the relief of croup is one that has excited the deepest interest in the last few years, and its merit is a question of the greatest practical value. It comes into competition, of course, with the older operation of tracheotomy, and the question of the comparative merits of the two is one that has been the subject of many articles. At the end of six years of trial, during which time the operation has been performed upon thousands of cases, intubation stands in a position to be judged on its merits, and to be compared with the operation of tracheotomy as a life-saving measure.

There are two methods of presenting this comparison to the reader: (1) By the relation of personal experience and by weight of authority[1]; (2) by the statistical method, which is open to the objection pertaining to all statistical inquiries in medicine, but which, upon the whole, seems to me to be a more scientific and satisfactory mode of procedure.

The objection to any method that collects reported cases of the two operations from literature and endeavors to draw conclusions in this way as to the comparative merit of the two lies in the fact that the statistics of either operation greatly vary according to locality and the individual reporter, so that in this way they lose much of their value from their lack of uniformity.

When groups of cases of tracheotomy, for instance, are collected from literature, the variation in the recovery percentage is a most striking one. For example: in 9242 cases collected from French authors the recovery percentage was 24, while in a group of 400 cases reported by Wauscher, of Copenhagen, the recovery percentage was 42. It is manifest that if any practical conclusions are to be drawn from the comparison of tracheotomy and intubation statistics, the two classes of cases should have been, to a certain extent, under like conditions. It is for this reason that I venture to call attention to two groups of cases, taken from the records of the Boston City Hospital, which seem to have more than a passing interest in determining the relative value of these two operations. I have nothing new to present in a statistical way, and merely desire to call attention to certain obvious deductions that seem warranted from the two groups of cases already reported from the Hospital. These deductions are, however, necessarily colored by my personal views and experience.

With regard to the opportunities afforded at this Hospital for such observation, it may, perhaps, be permissible to quote the remarks of Dr. O'Dwyer, in a letter to Dr. G. W. Gay:[1] "From the large number of cases of croup treated at the Boston City Hospital it certainly affords the best opportunity for the study of this disease to be found anywhere in this country. When you shall have accumulated the same number of intubations as you have had tracheotomies it will settle the question of the comparative methods of the two operations in saving life better than thousands of cases collected from various sources."

Up to the year 1887 the operation of tracheotomy was the only one performed at the Hospital. The cases from 1864 to January, 1887, were collected and analyzed.[2] Of these cases there were 327. Excepting in 30 cases, all of the operations were done between 1880 and 1887. The first intu-

[1] Faulkner: THE MEDICAL NEWS, April 9, 1892.

[1] G. W. Gay: Boston Medical and Surgical Journal, October 11, 1888.

[2] Lovett and Munro: The American Journal of the Medical Sciences, July, 1887.

bation was done at the City Hospital, December 31, 1886, and from that time to January, 1891, the operation was performed 392 times.[1] It seems perfectly fair to contrast these two groups of cases as bearing upon the merits of the two operations, because they were performed under like conditions, upon the same class of cases, and, for the most part, by the same surgeons. The operation of intubation was taken up with interest, and was most carefully watched.

It should be borne in mind that the cases included in these two groups are, for the most part, severe cases. The Hospital is particularly well equipped for the care of these cases of diphtheria, and, in general, cases are sent to the Hospital in preference to being operated upon at home. At the same time it is easy to see that the cases are sent to the Hospital generally as a last resort, after the expectant treatment has been pursued in most cases too long, and the children who are admitted to the surgical department of the Hospital are only too often in a hopeless condition. As mentioned by Dr. Gay, it has always been the policy of the Hospital to perform the operation, even in manifestly hopeless cases, in the hope of affording relief. It cannot, therefore, be expected that the mortality percentage will be a low one when such a class of cases is taken for analysis; nor, as a rule, would the results be nearly as favorable as in private practice, where cases are likely to be seen earlier, and where mild cases would be seen. The proportion of cases developing laryngeal symptoms in the Hospital is a small one, and most of the cases are admitted in a state of urgent dyspnea.

For the most part, the conditions from 1880 to the present time have been constant. If there has been any change, it has been since February, 1888, when a new diphtheria-ward was opened, which is particularly well equipped and well ventilated, so that it would seem probable that any change in the conditions would tell in favor of the later operation of intubation. Since July, 1890, two house-officers have been detailed for exclusive duty in the contagious service, serving two months, and living in the ward. If there is any fault to be found with the results of either operation at this Hospital, it is not to be ascribed to unfavorable conditions or inefficient nursing. The conditions are as favorable as possible.

After this prelude, it may be permissible to examine in detail what the results of the two operations have been, as exemplified by the figures taken from the books of the Hospital. Up to 1887, tracheotomy had been performed in 327 cases for croup. Of these cases, 232 died, and 95 recovered, making a recovery percentage of 29.05; ten cases died during or soon after operation, but only four of these from hemorrhage. It was manifest from a study of these cases that the tracheotomy death-rate at the Hospital continued for months in closest correspondence with the mortality percentage of diphtheria in the whole city of Boston. In short, when diphtheria was most fatal in the city tracheotomy was most fatal at the Hospital. It is presumable that the same conditions could be applied to intubation, although it has not been possible to analyze the cases in this regard. It must, however, be evident to anyone who sees many of these operations that it is the severity of the disease that kills in most cases rather than any influence related to the operation itself.

In the 327 cases of tracheotomy there were four in which it was difficult to remove the tube. Several months elapsed before it could be permanently taken out. All of these cases completely recovered.

In short, tracheotomy was performed 327 times, with 29.05 per cent. of recoveries; ten cases died immediately, presumably as the result of the operation, and in four cases there was difficulty in removing the tube.

The first intubation at the Hospital was performed on December 31, 1886, and from that time until January 1, 1891, this operation had been done 392 times. During this time 139 tracheotomies were performed. It is manifestly unfair to consider these tracheotomies as having any bearing upon the question at all, because, in those four years the operation of intubation was adopted as a routine procedure, so that tracheotomy was reserved for the most part for the severest and most desperate of the cases, in which it seemed hopeless to do intubation, so that these 139 operations, in which the recovery percentage was only 11½, cannot be taken into account in any way. It is not by this meant that the cases of intubation were selected, but that, naturally, tracheotomy, as the old and more tried operation, was adopted as a last resort in the severest cases. When it is noted that nineteen of these tracheotomy cases were moribund at the time of operation it can, perhaps, be better understood how desperate the majority of them were.

Of the 392 cases of intubation, 312 died, and eighty recovered, making a recovery percentage of 20.41. The accidents occurring in connection with tracheotomy have been mentioned, so that it seems perfectly fair to speak of the more numerous accidents in connection with the operation of intubation. Twenty-one times intubation was attempted, and immediate tracheotomy was necessitated by the cessation of breathing. Of these cases only two recovered. In three cases death occurred during the attempt to insert the tube. Two children died during the choking-spells. In two cases the tube

[1] Prescott and Goldthwaite: Boston Medical and Surgical Journal, December 31, 1891.

was drawn into a bronchus, and death of course resulted. In two the insertion of the tube was followed by convulsions. In two the introducer broke during the operation. This list of accidents, all necessitating tracheotomy, it seems to me, is a serious commentary upon the operation of intubation.

It is no easy matter to do an instantaneous tracheotomy when an intubation tube has been introduced and has failed to give relief, or when the attempt at intubation has caused sudden choking. The child is generally lying in bed, the cessation of breathing is instantaneous and very threatening, and the conditions are not favorable for the careful and successful performance of tracheotomy. The fact that only two of twenty-one cases of this sort recovered is not encouraging for the performance of such operations. The operations were performed with care, and under otherwise favorable conditions, inasmuch as they were undertaken in a well-equipped hospital, so that the liability to accident should have been certainly no larger than in private practice.

In two respects, then, intubation does not compare favorably with tracheotomy in the study of these two series of cases: 1. The death-rate of intubation is 9 per cent. higher; 2. Accidents during intubation are much more common.

It is of especial interest to consider the merits of the two operations with regard to children under three years of age. The outlook could hardly be worse than it is in tracheotomy. Of forty-two patients under two years of age, on whom tracheotomy was done, only three recovered, while, of 123 cases in which intubation was performed on children under three years of age, 14.63 per cent. recovered. Although these two groups of cases cannot be very well compared on account of the differences in age, yet if an operation is so nearly hopeless as is tracheotomy, it seems wiser to perform the milder operation of intubation. Again, tracheotomy in these very young children is likely to be a difficult operation, and, although intubation is by no means easy in these small mouths, it seems to me to be a more acceptable operation than tracheotomy in children under two years of age. In children between two and three the question would be debatable. With regard, however, to the choice between the two operations in general, the question is often evaded by the performance of intubation, to be followed by tracheotomy. Should the case progress badly, it is against this secondary tracheotomy that I would particularly protest. I would plead for the early performance of tracheotomy if it is to be done at all.

The showing for this secondary tracheotomy is exceedingly bad when the figures are considered. In the City Hospital figures there were 57 secondary tracheotomies, with 5 recoveries. Ganghofner[1] has reported 21 late tracheotomies in 42 cases of intubation, all of which were fatal. Urban[2] lost all of 18 secondary tracheotomies done after 32 intubations. Jakubowski did 27 secondary tracheotomies in 64 intubations, and 25 died. Mudd[3] saved 3 out of 4 secondary tracheotomies.

These are all the reported groups of secondary tracheotomies that I have been able to find, but as a collection they afford very little encouragement for secondary tracheotomy, whatever the cause may be of this great fatality:

	Secondary Tracheotomy.	
	No. of cases.	Recoveries.
City Hospital	57	5
Ganghofner	21	0
Urban	18	0
Jakubowski	27	2
Mudd	4	3
Total	127	10

The recovery percentage was 7.8, and without Mudd's very exceptional group only 5.8 per cent. recovered.

To commit oneself to a method of procedure of which the recovery percentage in cases of average severity ranges from 6 to 8 seems unjustifiable. In view of these figures the conclusion that I would present is that intubation is not so favorable an operation as tracheotomy for the saving of life in severe laryngeal diphtheria. The chief reason for this appears to me to be twofold: intubation does not afford such good drainage to the trachea, and only a limited amount of nourishment can be taken by the intubated patient.

First, as to drainage. A child on whom tracheotomy has been performed expels through the tube large quantities of detritus, consisting of mucus, pus, and diphtheritic membrane. The metallic expulsive sound with which this is ejected is familiar in every tracheotomy-room. The stuff comes out, often a teaspoonful at a time, for two or three days, and the larger the amount of discharge the more favorable the outlook for recovery.[4]

In intubation cases this does not occur. Whatever becomes of this mass of material, it is certainly not expelled from the mouth. It may be swallowed or it may be inhaled, but it is not often expectorated. To my mind this is a great disadvantage, in comparison with which the occasional accidents associated with intubation are of little account. The material is highly septic, and its retention in the body cannot be otherwise than harmful. This is a

[1] Jahresbericht f. Kinderheilkunde, 1889, xxx, 3.
[2] Deutsche Zeitschrift f. Chirurg., 1890, xxxi.
[3] Medical Mirror, January, 1890.
[4] The American Journal of the Medical Sciences, July, 1887.

matter that has been largely overlooked, but which is certainly of consequence in severe diphtheria.

The limited amount of food that most cases of intubation are able to take is also to my mind a decided objection to the operation in severe diphtheria. In the tracheotomy series the children took from twenty to forty ounces of milk a day. Thirty ounces constituted a fair amount, and when a child took less than twenty-five ounces it was noted as an unfavorable symptom. In the intubation cases the diet was retricted to soft solids, which are inferior to milk in their sustaining power, and a much less quantity was generally taken than was the case in the tracheotomy series. A diet of soft-boiled eggs, milk-toast, ice-cream, and oatmeal, is not a stimulating one, nor is it one very well suited to maintain the strength throughout an intensely septic and prostrating disease. Rectal injections can of course be used to supplement feeding by the mouth, but only a limited amount of food can be taken in that way, and often none at all is retained. It has been said that it is the severity of the disease that kills in most cases, whatever the operation, and the free stimulation possible in tracheotomy cases is often a powerful aid in withstanding the great prostration and sepsis. To give up the hourly stimulation of concentrated food and alcohol, pushed to its utmost, is to my mind to give up a very important means of doing good in these desperate cases.

Most of the objections so often urged against intubation seem trivial in the extreme. The fact that the lumen of the tube is smaller than the normal trachea, that tubes are occasionally coughed out or swallowed, the fact that food is occasionally drawn into the trachea, are matters of small moment. Intubation tubes become stopped with membrane often, but so do tracheotomy tubes. These are comparatively trifling matters.

When, however, an operation shows a recovery percentage of nine less than the operation that it is intended to supersede, in presumably the same class of cases, it becomes time to criticise it, and, if possible, to find the source of the greater fatality.

In conclusion, I would again call attention to the lamentably small recovery percentage in cases in which tracheotomy has been performed after a preceding intubation. Again, accidents, and especially hurried tracheotomy, occur often during attempted intubation. In most cases these eventuate fatally.

Finally, I would suggest that the cause of this increased fatality after intubation in severe diphtheria lies in the imperfect drainage and the limited amount of nourishment that it is possible to give.

The performance of any operation as a routine practice is of course unfortunate, and individual cases should be treated according to their especial features, but in general I would be glad to advocate the performance of tracheotomy instead of intubation in most cases of severe laryngeal diphtheria, except in the cases of children under two years, when intubation is to be preferred.

ORIGINAL ADDRESS.

THE RELATIONSHIP OF DISEASES OF THE LOWER ANIMALS TO MAN.[1]

BY JAMES LAW, F.R.C.V.S.,
PROFESSOR OF VETERINARY MEDICINE, CORNELL UNIVERSITY, ITHACA, N. Y.

I ACCEPT the invitation to address you on this occasion as a tribute to the growing sense of the value of comparative medicine in the sanitary field. I shall therefore ask your attention shortly to a few points showing the relationship of diseases of the lower animals to the well-being of man.

A sense of the dangers attendant on the use of animal food appears to have been almost as old as history. The law of Moses distinguishes between the clean and the unclean, the beasts that may be eaten and those that may not. The prohibited animals are, in the main, the purely carnivorous and omnivorous — those that are especially liable to contract contagious and parasitic diseases from the flesh of their victims. In drawing a safe limit, the edible mammals were practically restricted to the ruminants, which are *par excellence* herbivorous. According to this law, however, even the *clean* animals were forbidden, if they died of disease, of strangulation, or with the blood in the carcass. Similarly, among many primitive peoples a dead body is tabooed, and in ancient Greece the priests of Zeus were polluted by touching uncooked meat.

The great sanitary importance of the Mosaic laws for a pastoral people pitching their tents on the open, grassy plains, and living, in a sense, in common with their vast flocks and herds, is manifest without argument. The parasites and contagia that they mutually harbor increase and dominate in exact ratio with the close aggregation of their hosts—human and brute—and the facility of their transmission from one to another. The prohibition falls first on those flesh-feeders that are the most likely to reciprocate with man in the maintenance of parasites and infections. Then it denounces the sick as especially dangerous, and, finally, that which dies full of blood and is correspondingly liable to early putrefaction. The prohibition of blood was probably ritualistic rather than sanitary in its object, yet we need not ignore the experiments of Signol, who showed that the portal blood of a suffocated horse contained a poison that could be conveyed from horse to horse with fatal results through several successive generations.

The simple avoidance of the dead body and of uncooked meat in the case of many early peoples, though showing a similar precautionary tendency, is far less effective than the prohibitions of the Jewish code. We can still observe the good fruits of the latter in the comparative immunity of the Israelite from such diseases as trichinosis, the pork tapeworm, and tuberculosis.

These examples of tribal hygienic laws, however well-

[1] Delivered before the Alumni of the University of Buffalo.

suited to an age in which the knowledge of disease and its causation was but as a glimmering spark, are sadly antiquated and ineffective in the strong electric glare of the nineteenth century; yet even now our hygiene of meats, as applied to our stockyards and markets, is far behind that which the Jews have practised for over three thousand years.

The Jewish system is a crude measure, feeling, as it were, in the dark for protection from an imminent danger, and was perhaps as perfect as could be understood by a people with the grade of knowledge possessed by the Jews; but it is capable of making no real discrimination between the dangerous and the harmless—whole genera of wholesome animals are prohibited to avoid the danger of a few of each genus conveying deadly poisons; and the wholesome flesh of the imperfect or injured animal is condemned equally with that which is the subject of a fatal infection. Moreover, some of the most deadly diseases (like anthrax), affecting the blood and spleen only, may still pass as wholesome, because no solid tissue of the body has been observed to be diseased.

With our modern knowledge of the life-history of parasites and of the microbes of disease this crude and unintelligent selection and rejection must give place to a true scientific scrutiny; and every available resort, microscopic and otherwise, must be brought into requisition to protect the public from the truly dangerous animal foods.

To illustrate the field that must be covered I shall name a few of the diseases of our meat-producing animals that are communicable to man, and I cannot begin the list better than with

TUBERCULOSIS.—From this terrible scourge the sheep is almost exempt, while cattle, goats, pigs, rabbits, and chickens are extraordinarily susceptible. Among many wild animals also, the proclivity is strong, and thus at every hand man is liable to meet the redoubtable bacillus. The dangers of the disease are the greater that in many cases occurring in man and beast it assumes a chronic course, and its victims manifest a fair measure of health, so that their unsuspecting owners apprehend nothing and see no need of disposing of them, and of thus cutting short their career of plague-diffusion. The vitality of the tubercle-bacillus is also very great, so that it survives alike the lapse of time, the wetting, drying, freezing, and thawing of changing seasons, and even the curing of the meat and the heat of ordinary cooking. Toussaint and others have again and again infected animals with meat that was believed to have been sufficiently cooked for safety. The dried-up expectoration is easily diffused with deadly effect on the air, to be inhaled by man and beast; and though for man perhaps the most common vehicle is the handkerchief, and for the beast the feeding or drinking trough, yet the dust of of our streets and stock yards, of our dwellings, stables, passenger and stock cars is a prolific channel of infection.

Milk is another common medium of infection, and, since the time of Gerlach, has been often used successfully to produce tuberculosis in previously healthy animals. Nor is the local disease in the udder essential to its conveyance through the milk. The tuberculous cow, with a still apparently healthy udder, frequently yields milk which, inoculated in other animals, produces tuberculosis. Irrespective of the escape of the microbe with the milk, however, it is a thousand to one that the tuberculous cow in licking her udder should leave upon it more or less of her infecting expectoration, to be dropped into the milk-pail as dust at the next milking. A frequent mode of propagation among pigs must not be overlooked. About abattoirs it is a common practice to feed to pigs the uncooked offal of the slaughtered animals. As in certain districts a considerable proportion of the cattle are tuberculous, this amounts to a systematic infection of the hogs. A few years ago, at a large public institution, where one-half the herd of cattle proved to be tuberculous, and where the pigs were fed on the offal of these cattle killed for beef, I found that the swine were, as a rule, similarly affected. I am informed that it is no uncommon thing here in New York for a cow, run down by tuberculosis, to be butchered in some out-of-the-way place, cut up into mince-meat, and put on the market as sausage.

Then, again, the danger of contamination through offal and expectoration, though great for pigs, is even greater for chickens, which secure admission to every yard, and eat indiscriminately any organic refuse they can find—notably thick expectoration. Then, too, the course of tuberculosis is far more virulent in the chicken than in our larger mammals, and the product is proportionately infective to other animals. Is it wonderful that in the State of New York for a period of eight years ending 1888, every eighth death was from tuberculosis? We need not ignore or undervalue the accessory and predisposing causes of this dread disease. Many persons have undoubtedly a great power of resistance to tuberculosis, and the great majority escape death by this all but ubiquitous germ; yet the facts remain that none contracts the affection in the absence of the bacillus; practically no efficient measures are taken to restrict its prevalence, and 12 per cent. of our human mortality is caused by its ravages. Now, one word as to the diagnosis of tuberculosis in animals. Speak of consumption, and the average hearer conjures up a vision of extreme emaciation, a frequent, racking cough, profuse expectoration, with solid particles floating in a purulent medium, a heavy and somewhat offensive breath, inappetence, sunken eyes, and general wretchedness. In cattle, however, the majority of cases show no such symptoms, at least for a length of time—often for years—after the onset of the disease. The symptoms will vary extremely, and prove in the main absolutely unlike in different cases, according to the organ attacked. I cannot take time here to enumerate the symptoms of the different forms, so I shall content myself with naming the organs most frequently attacked, to the exclusion of the lungs:

1. The bowels and mesenteric or sub-lumbar glands.
2. The throat and pharyngeal lymphatic glands.
3. The liver, spleen, pancreas, or kidney.
4. The generative organs (ovary, womb, testicle).
5. The subcutaneous and intermuscular lymphatic glands.
6. The cancellated tissue of the bones.
7. The skin.

As the involvement of each of these may assume all grades of severity, it must be evident that great skill is required to diagnosticate many a chronic or subacute

case of tuberculosis in the animal. In many occult cases, indeed, diagnosis is practically impossible by ordinary tests, and in the case of dairy herds in particular the reaction with tuberculin may be invoked to attest whether the milk-supply is wholesome or otherwise. Inoculations may further be resorted to in doubtful cases. These tests, however, together with the post-mortem examination in the abattoir, with the occasional resort to staining and microscopy, can only be conducted by the educated man.

To properly restrict such a disease as this, and to prevent its propagation to the human family from the brute, a professional supervision of dairy herds is demanded; also, of stock yards, but above all of slaughter-houses, and to make this last effectual every town should have its *one* municipal abattoir, where alone animals may be killed and where every animal killed must be inspected. Meat that has not been inspected by the authorities should be debarred from the market.

ANTHRAX.—To turn to another animal contagion—*anthrax* may be selected. Though most deadly to both man and beast, this, when once started, is not propagated indefinitely in a locality. Its germ—the bacillus anthracis—is one of the largest of the pathogenic microbes, and was the first to be identified as a cause of disease. The disease is rarely propagated except by contagion from diseased animals—either directly, or through the medium of flesh, blood, morbid discharges, hair, wool, hides, bones, litter, knives, or other solid bodies that have been stained with the diseased products. Its perennial home is in certain dense, wet, or septic soils, in which its spores are preserved indefinitely, and which prove deadly to flocks or herds placed upon them. In open, well-aired soils it is soon rendered harmless. In man it is largely the disease of herdsmen, cattle-dealers, butchers, tanners, hair-workers, felters, and wool-sorters, and, exceptionally, through the contaminated flesh, milk, or cheese of consumers. Though this wholesale poisoning of men is exceptional, yet on infected soils it sometimes reaches a high figure. In 1770 15,000 people died in six weeks in St. Domingo from eating anthrax flesh, and in the frequent anthrax years on the steppes of Russia a large percentage of the human population often perish in a single year. Besides this, the virus is carried and inoculated by mosquitoes and other blood-sucking insects, and thus man is usually attacked on the face, hands, and arms—the parts which are habitually bare. The dangers to man are, therefore, coextensive with the prevalence of anthrax in animals. Anthrax may, however, appear as a general fever, with no local external lesion, or it may become localized in tongue, throat, bowels, skin, muscles, lungs, or elsewhere, and according to its seat will be its symptoms and morbid changes. At the autopsy the engorged spleen may indicate disease, but it requires professional skill to say whether that engorgement is due to the bacillus anthracis, the shorter bacillus of blackquarter, a bacillus of septicemia, or the plasmodium of Texas fever. From Texas fever, however, man is exempt, and he can eat the flesh of its victims without thereby sealing his fate.

BLACKQUARTER, or bloody murrain of cattle and sheep, has been alleged to be incommunicable to man, as anthrax has been said to respect swine, but there is a sufficient number of instances to the contrary to show that the immunity is by no means invariable.

DIPHTHERIA.—It may be a revelation to some that that dread of our nurseries—diphtheria—is also a disease of the lower animals, and that, among other parts, it attacks the udder and milk-ducts of cows, and thus through the medium of the milk it can find an easy entrance to the throats of children. Whether, therefore, in the dairy cow or in the slaughtered ox, the educated eye should be ready to detect and remove the animal charged with such a terrible infection.

GLANDERS is usually supposed to be confined to the horse and man, and in both alike it is rightly considered one of the most painful, loathsome, and fatal diseases. It can be successfully inoculated not only in man and the horse, but also in the sheep, the goat, the pig, the rabbit, the dog, and the cat. The meat-inspector must, therefore, be acquainted with the affection as it occurs in each of these genera, and as it attacks the different regions of the body; for glanders may attack almost any portion of the system, to the exclusion, at first, of its common seats, the nose and skin. In this disease, too, as in tuberculosis, the germ (*bacillus mallei*) elaborates specific chemical poisons (ptomaïnes and toxines) which, when inoculated in the suspected animals, go far toward determining the presence or absence of the disease, by producing or failing to produce a febrile reaction in the subject. Again, as in tuberculosis, the germ of glanders can be cultivated on a large number of organic substances, as bread, potatoes, peptonized gelatin, etc., outside of the animal body, and hence its tolerance in any locality is a source of constant danger, and, in the present state of knowledge, nothing less than criminal.

CANINE MADNESS.—As we erroneously attach the idea of glanders among domestic animals to the horse only, so we connect the idea of rabies (hydrophobia of man) with the dog. Not man alone, however, but all domestic animals contract this disease when inoculated with the mad dog's tooth, and in all alike the carcass becomes infecting. I must add that the disease does not always present itself in the violent or delirious form, but that in a certain number the apathetic or paralytic symptoms predominate from the first, and in the absence of an intelligent inspection the meat of such an animal may be thrown upon the market and may fatally infect those that partake of it. That this disease can be prevented by inoculation with the toxines has been shown by the admirable work of Pasteur; yet the enthusiastic application of his method to the as yet sound animal is not without its drawbacks and dangers, unless the animal so inoculated is carefully secluded from others for a length of time. It is a notorious fact that where such inoculations have been most extensively adopted rabies has been unusually prevalent in animals, a circumstance that calls for intelligent supervision of our meat-products in this direction.

TETANUS, or LOCKJAW, is nearly related to rabies. Its germ (*bacillus tetani*) is conveyed from infected soil to man or beast, and from animal to animal indefinitely. Like rabies, it makes its localization in the great nerve-centers, as the general racking muscular spasms bear all too frequent evidence. Like rabies, too, it attacks all warm-blooded animals, and thus man may suffer by infection from any creature so diseased, or from contaminated dwellings, instruments, or soil. While it is true that this malady can be cured by the blood-serum of an

animal that has survived an attack, and while it is further true that the system may be fortified against it by inoculation with the ptomaïnes and toxines produced during the disease, such truths can never justify the lack of such skilful professional inspection of our meats and meat-producing animals as shall protect the community from an affection at once so agonizing and so redoubtable.

MILK-SICKNESS.—In a number of localities that have fallen behind in the race of agricultural improvement there lingers a disease, indigenous to the soil, communicable to all mammals and affecting the nervous centers so as to nearly abolish the functions of the brain and spinal cord. It produces, among other things, profound torpor of the digestive functions, general nervous tremors, loss of control of the voluntary muscles, and great depression of the intellectual functions, amounting in man to loss of the moral sense. If survival takes place at all, it is at the expense of rational and moral qualities, as a result of which continued existence is rendered altogether undesirable. A dangerous feature of this disease is that, if it attacks a milch-cow, most of the poisonous products are secreted in the milk, and the cow shows only slight signs of illness. The contaminated milk, butter, and cheese, however, prove most pernicious to those who consume them; hence the disease is known as *milk-sickness*. Physicians practising in *milk-sick* districts say that such cases are not altogether absent from our large cities, being caused by the meat, butter, and cheese shipped from such contaminated districts, and that certain obscure cases of intestinal torpor, brain-prostration, and mental hebetude are to be thus explained. It is true that milk-sickness is an affection confined within very narrow limits, yet, like other deadly contagia, it could be largely obviated by a strict municipal professional control of all meats offered for sale.

FOOT-AND-MOUTH DISEASE is fortunately not a present denizen of this continent, but, when it does secure a footing on our shores, it threatens all mammals, and through the contaminated milk is liable to carry off our children by an acute digestive disorder.

ACTINOMYCOSIS, the LUMP-JAW of cattle, is common in man and other animals, attacking not the jaws alone, but the tongue, face, throat, abdominal organs, the walls of the chest and belly, and even the brain. As the disease is due to a slowly growing cryptogam, it has been common practice in Europe to cut off the diseased portion and put the remainder of the carcass on the market *as sound beef* forsooth. Some great feeders and packers connected with the Whiskey Trust are contesting in the courts of Illinois their right to do the same. A sound sanitary system, recognizing that this vegetable parasite can only proceed from the seeds of a similar preëxisting growth, that the seeds from any such growth may develop when planted on any susceptible raw surface or follicular recess of the body, and that its presence in isolated form in such a secluded organ as the brain proves the conveyance of the seeds by the animal fluids, must recognize that the removal of the visible deposits is no sufficient guarantee, and that the condemnation of the entire affected carcass is demanded. It is quite true that the thorough cooking of the meat would render it wholesome, but the same remark would apply to trichinous flesh or to any meat in which the dangerous factor is a living organism. That man suffers extensively from the disease is witnessed by reports in the medical journals of from two hundred to three hundred cases in the course of a few years past. The danger is, therefore, far enough from being a merely imaginary one.

I need not try your patience by following this list further. I might speak of *malignant edema*, and other forms of *septicemia*, of *erysipelas*, of *pyemia*, of *gangrene*, of *echinococcus*, of the *beef and pork tapeworms*, of *trichinosis*, of the *infective osteitis* of young animals, and of still other infections and parasites that we reciprocate with our brute possessions. I might speak of the leukomaïnes and toxines of overexertion and excitement, and of the ptomaïnes and other poisons of decomposing and putrid meats, of the inoculation of live stock with animal venoms, of the impregnation of the flesh with vegetable narcotics, which though harmless to certain herbivora, are deadly to man, and of the presence of certain inorganic agents, which, like phosphorus, are most injurious to the human organism. I might go on to show that in all conditions of high fever and in various other forms of disease the flesh becomes unwholesome and innutritious. Finally, I might go over the whole list of zymotic diseases that respect the human family, but are contagious from animal to animal, decimating herds, depressing agriculture, and reducing the quantity and raising the price of meat.

I have said enough, however, to show that the comparative pathology of the end of the nineteenth century is such as to justify and demand a scientific inspection of our live stock offered for food or furnishing dairy-products, and no less so of carcasses presented for human consumption. By scientific inspection I mean, not the untaught glance of the man who has graduated from the stock yards, the shambles, or the army commissariat, but the skilful scrutiny of the professional man, trained in comparative pathology, up to date in the sciences of bacteriology and parasitism, and having at his command modern methods of work and instruments of precision. I cannot too much deplore the low estimate put by the public on such work. The political representatives of this State at Albany voiced the general ignorance in enacting a law giving the title of veterinary surgeon to all who would testify that they had prescribed medicinally for sick animals for a period of three years, and now every county in this State has its crowd of registered veterinarians, utterly innocent of all knowledge that goes to make up the armamentarium of the comparative pathologist, but nevertheless duly licensed to poison, maim, and slay the valuable flocks and herds of the Empire State. A few days ago a gentleman whose horse had his hoof wrenched off in crossing a railroad track was told by the superintendent of the road that he should have applied to him and he would have sent him to the best veterinarian in New York. The practitioner so designated by the superintendent turned out to be one of those registered veterinary surgeons who had graduated from the stable, and by act of the Legislature had been endowed with all the rights and immunities that pertain to the comparative pathologist. The gentleman, however, knew better and saved his horse.

If the action of the Legislature and of the railroad magnates is to be taken as a proper gauge of public

opinion, it is not surprising that New York has done next to nothing, as a State, for the education of the veterinary physician and sanitarian. Such education has been left to private enterprise, and as a matter of course it must be restricted by financial considerations, and the length and thoroughness of the course of study must remain a consideration secondary to the resultant income. It is useless to deny that veterinary education has suffered seriously from this cause, so that the possession of a diploma of one of the schools is not necessarily a guarantee that the owner is a desirably educated man. He has received some training, however, in the fundamental principles of comparative disease and medicine, and if his preliminary education is such as to permit it, and if he is sufficiently industrious, he can carry on his education and make himself an accomplished man.

In Europe, with a system of veterinary schools equipped and controlled by government, they do better. The matriculant must be a B.S. or B.L., or he must hold a first-class professional certificate from a gymnasium, and must thereafter pursue a course of study for four entire years before he can present himself for the final examination for a degree. The records show that even then not more than one-third secure the coveted diploma, and the remainder have to take a fifth or even a sixth year before that desired goal is reached.

If America could have similar government colleges we would be enabled to secure veterinary sanitary officials of the high quality required. In the absence of government schools, something should be done by some of our wealthy universities; but even with them we see as yet hardly the first faint ray of recognition of this great need of the country. Each institution earnestly competes with the others in establishing rival schools of classics, of the general sciences, of philosophy, and many in developing colleges of economics, of law, of agriculture, of architecture, of engineering, of mechanics, of medicine even; but this one subject, which lies at the foundation of all sanitary control of our meats and dairy products, of the preservation and soundness of $2,000,000,000 worth of live stock destined for human consumption, the pathology of our great animal industry, which is essential to the permanent fertility of our soil, is persistently ignored. The University of Pennsylvania and Harvard University have now made a beginning, and we may hope to see a better recognition of this subject in the future.

Of our 43,400,000 cattle, it is estimated that 3 per cent. are tuberculous, while the ratio in dairy cows rises much higher. If, however, we count only 2 per cent. on our 95,200,000 cattle and swine, we have in round numbers 2,000,000 domestic animals daily exposing man and beast to this terrible contagion, and we have a large proportion of these yearly sold from the butchers' stalls as human food. Though we ignore all the other animal diseases communicable to man and confine our attention to this alone, we may well ask, in the light of our sanitary knowledge of to-day, Is it less than criminal to neglect this source of danger, so manifest and so preventable, or to delay educating men for this sanitary service?

The education of efficient men is, however, not enough. Arrangements must be made whereby these men will be enabled to perform their work with system and thoroughness. Our perfunctory plan of inspecting the carcass in the butcher's stall is utterly insufficient. Some contagions that render the meat deadly may at given stages of the disease show to the unaided eye little or nothing abnormal on inspection of the dressed carcass. Splenic apoplexy is a notorious example of this. It follows that the subject must be made to pass the scrutiny of the skilled eye before death and during slaughtering, and that instruments and methods of precision must be called into requisition whenever they may be needed. Such inspection, however, often becomes practically impossible in the private slaughter-house, where the proprietor can control the opening and closing of the doors, the hours of slaughter, the disposal of the products, etc. To secure a satisfactory inspection the abattoir must be a public municipal institution, under strict regulations, and in which all butchers may hire at low rates the facilities necessary for slaughtering and utilizing the products. Apart altogether from the sanitary inspection of meats, this has been generally found to be the most economical, cleanly, inoffensive, and in every way most desirable method; when, therefore, it is also the only method that can insure that the inspection shall be satisfactory it may be held imperative on every city to adopt it. The advantages of one central abattoir appear to have been first realized by a guild of Roman butchers in the days of the ancient empire, but the true municipal abattoir, owned and controlled by the city, we owe to the first Napoleon, who projected those of Paris in the later years of his reign, showing a wise example, which has since been followed by nearly all of the great cities of Europe. The concentration of the work of slaughtering has been attempted in Boston, Philadelphia, and New Orleans, and to a lesser extent in New York, but in nearly every case the ownership has been vested in a private corporation, so that the greatest benefits to the butcher and the public have failed of realization. To give an example of the economy of municipal ownership, the Edinburgh abattoir rents a slaughtering booth, pen, and yard, with all facilities for the utilization of the products, for $40 a year. To the butcher, therefore, it is a real economy, and this object must never be lost sight of in sanitary administration. The community has a right to protect its health by the control of slaughter-houses and the rigid scrutiny of all sources of its meat-supplies; but if in so doing it imposes any undue or unnecessary burden on the honorable butcher, it will only serve to arouse opposition and defeat its own ends. Hence the granting of a charter to any company to erect and maintain an exclusive abattoir is, in my opinion, a most unwise procedure. A public building, owned by the city, controlled by the health board, and conducted on principles specially favorable to the butcher, is the ideal provision, and such an establishment faithfully administered must soon establish its claim to permanence.

As regards the dressed-meat trade, it is manifest that as yet the same strict inspection cannot be applied. It is to be hoped, however, that ere long our cities will be supplied with carcasses stamped with a certificate of soundness, as is now furnished with the meat shipped to Europe, and that the authorities may be able to obtain the assurance of the thoroughness and reliability of such

inspections, whether conducted by government or municipal agents.

Like all reforms, this sanitary inspection of meats and meat-sources will be opposed on the ground that what was good enough for our fathers can be safely borne with. Such an argument, however, proves too much. Could Buffalo maintain her prosperity if the lakes were cleared of all steamers and the traffic once more remanded to sailing craft? Could her business be conducted in the absence of telegraphs, telephones, gas, and electric lighting systems? Could she safely abolish her sewage system or her steam fire-engines? Would it be less than criminal to go back even to untrapped or unventilated sewers? Could the modern surgeon be tolerated if he ignored alike anesthetics and aseptic operations?

Every age has its own status of knowledge, and such knowledge entails a corresponding measure of responsibility. What was an advanced position for our great grandparents would be a reprehensibly antiquated and effete measure in our own day, clogging the wheels of progress and dooming a community or nation to decadence. It is true to-day as in the days of Isaiah, "The nation and people that will not serve the Lord shall perish, yea, that people shall be utterly wasted" (Isa. lxii, 12). With our fuller knowledge of the laws of God's universe, we have a greater trust imposed upon us, and unless we recognize these laws and harmonize ourselves with them in every sphere of human activity we shall fail of our stewardship and lag behind in the general progress. There is a profound truth in the Socratic aphorism "Vice is ignorance; virtue is knowledge." We can modernize it by saying, "To ignore the knowledge of to-day is vicious; to avail of it and practise it is virtuous." Whenever we step aside from a utilization of all available knowledge and skill for the advancement of the material prosperity of the people and the general sanitation we become recreant to our trust, and no consideration of petty economy, of party success, or of national indebtedness to an unfit candidate can remove our action from the category of the vicious and destructive. In regard to the main subject before us—the inspection of animals and meats—we have the highest moral as well as material reasons for securing skilled and honest officials. The movement is destined to conserve the numbers and health of our live stock, without which the native fertility of our soil must steadily decline, and it is destined to protect that most sacred of all trusts, the health and lives of our people, and in consequence the power and prosperity of the nation.

CLINICAL MEMORANDA.

REPORT OF A CASE OF MEDIASTINAL TUMOR, WITH SPECIMEN.[1]

BY NATHAN JACOBSON, M.D.,
PROFESSOR OF CLINICAL SURGERY AND LARYNGOLOGY, COLLEGE OF MEDICINE, SYRACUSE UNIVERSITY.

MR. C., a civil engineer, fifty-six years old, had been under my professional care at various times for ten years for slight ailments. His father had died at the age of eighty-six of carcinoma, of the face; his mother at eighty, of apoplexy, having for five years prior to her death exhibited the usual cerebral disturbances incident to atheromatous vascular degeneration. The patient was of an exceedingly nervous temperament, and had been in the service during the Rebellion.

Early in the summer of 1890 he felt unusually enfeebled, and went into the mountains of Pennsylvania to recuperate. He returned in July, 1890, and while engaged in some professional work, on the 28th of the month, he was seized with vertigo and was obliged to go home. Being called, I found his face congested, the vessels of the head and neck greatly engorged; the latter were so distended that the normal contour of the neck was entirely lost. The voice was of a piping character; vertigo persisted; the pulse was somewhat irregular, but soft and not disturbed as to frequency. Recognizing the presence of cerebral congestion due to some obstructive trouble, I prescribed Rochelle salts. For the succeeding four days he was confined to his room, when the vertigo disappeared and the congestion of the head was materially improved. The veins of the neck, and particularly those of the right side, however, remained engorged.

Within a week the clinical picture gradually changed, and venous engorgement manifested itself in the left arm. The swelling slowly extended from the axilla to the hand. By the 10th of August, 1890, the hand and forearm were considerably enlarged. The surface veins of the chest had increased in size, and could readily be seen making a vast network. Change of position, keeping the hand elevated, while the patient was in a recumbent posture, did not in any way affect the size of the left upper extremity. The chest and abdomen were carefully searched for the cause of the obstruction, but physical examination revealed nothing. The opinion was expressed that the existence of a mediastinal tumor would alone account for all the symptoms. The patient denied syphilitic infection; yet, thinking that the obstruction might possibly be due to pressure from a syphiloma, the iodides were administered, beginning with ten-grain doses three times daily; strychnine and digitalis were also prescribed.

The man complained of feeling weak, but was otherwise not materially disturbed. After a few days of confinement at home, he was able to be out and to call upon me at my office. The left upper extremity continued to swell and grow cold. It became somewhat edematous and the edema extended to the chest. He reported that each morning upon arising, his face was quite swollen, but the engorgement disappeared somewhat after being about.

By August 20th the left arm measured 13 inches in circumference, as against 10 for its fellow at a corresponding point; the left forearm 12½, while the right was but 9¾. The swelling and edema of the left side of the chest increased, until the man appeared to have a well developed left mammary gland. At this date the abdominal veins had greatly increased in size, and the area of hepatic dulness was also increased. The right arm now became painful, although not swollen or edematous. The iodides had been steadily increased, so that the dose taken August 20th was thirty grains of the potassium salt three times daily. The urine was color-

[1] Read at the meeting of the Central New York Medical Association, May 31, 1892.

less, of a specific gravity of 1008, alkaline, and contained neither albumin nor other abnormal ingredients. Four days later still, further venous stasis of the left arm was apparent. On the right arm near the elbow an edematous area about two inches in diameter had appeared. The apex-beat of the heart was slightly displaced to the left. The pulse at the right wrist was 105; at the left it could not be made out at all, because of the edematous swelling. The surface veins of the chest and abdomen were rapidly increasing in size. The patient was strongly advised to abandon his work, for up to this time, and even later, he persisted in performing many arduous duties.

During September, 1890, the patient was confined to his house. The swelling and edema of the entire left upper extremity continued, until it seemed as though the skin was stretched to its utmost. Early in the month the right arm began to swell, the swelling extending from the point already mentioned, at the inner side at the elbow, to the forearm and the hand. The veins of the chest and abdomen continued to increase in size.

At the close of the first week of September the man was compelled to sit up constantly, night and day. Any attempt to assume the recumbent posture would produce most distressing dyspnea. He was unable even to sit propped up in bed, but was obliged to occupy a chair, and to secure what sleep he might with his head bent forward and resting upon another chair or upon a table. The respirations grew steadily shallower, and the slightest effort made the man pant. At this time both lower extremities became edematous, the edema reaching to the knees.

On September 25, 1890, the swelling disappeared from both hands and grew less in the forearms and arms. An effusion was present in the right pleural cavity. The area of liver-dulness was increased, so that on October 1, 1890, it extended three inches below the border of the ribs and across the abdomen almost to the free border of the ribs of the left side. The upper border of dulness on the right side was at the level of the third rib, partly from the existence of the pleural effusion. The spleen was also enlarged. Although examination of the heart failed to detect any abnormal murmurs, palpation readily recognized the *fremissement cataire*. The patient's face had grown paler and thinner; his voice was stronger, but his speech was very "choppy." The iodides had been continued in increasing doses, until one hundred and fifty grains were being taken daily. As no improvement, however, followed their administation, they were discontinued, and the medication was reduced to the giving of strychnine in $\frac{1}{10}$ grain doses three times daily. The patient's mind remained clear, and he suffered but little pain.

Early in October, 1890, he decided to go to a water-cure located in Geneva, where at least he might secure absolute rest and receive better personal attention than was possible at home. At this institution the diagnosis of mediastinal tumor was doubted, and the patient was subjected to massage and baths. He sent me word, however, that he was able to breathe better and even to lie down and sleep.

I saw him but once during the spring of 1891, on March 14th, when I found the pleural effusion lessened, and the edema of the extremities greatly improved. The pulse, however, remained above 100, while it was very feeble and intermittent. The veins of the chest continued prominent, while those of the abdomen became simply enormous in size. A limited area of dulness could be made out over the upper portion of the sternum and an inch to the right.

The man was able to walk about during the summer of 1891 and ceased to take medicine. In fact, I failed to see him at all between March and September, and his apparent improvement was so great that his friends even questioned my diagnosis and prognosis. Upon his return to me in September, 1891, I found him substantially free from edema of the upper extremities. On the inner aspect of the arms exquisitely tender and slightly edematous areas persisted. The venous engorgement of the surface, the hepatic and pleural dulness remained, but lessened in extent. Breathing was superficial, and dyspnea, associated with suffocative attacks, was readily provoked. The voice was weak. Inspection of the chest now showed a prominence of the inner extremities of the second and third ribs of the left side and the sternum at this level. This area was exceedingly tender, and the patient could not bear to be percussed at all. Dulness, however, could be mapped out as reaching to the clavicle, and laterally to the mammary line and downward to the fourth rib. At the most prominent portion of the sternal projection a small tumor could be seen and felt. Numerous secondary glandular growths appeared upon the skin, some of them quite large and many even more painful to touch than the sternal growth. The urine was found to be cloudy, pale-yellow, of a specific gravity of 1016, and acid in reaction; earthy phosphates were in excess; no albumin was present; a few uric-acid crystals and pus-corpuscles were found. Aside from the respiratory difficulties the patient had lost all the urgent symptoms that had been so distressing a year before. The edema of the upper extremities never returned. He was able to lie down and occupy his bed at night; he was very feeble, yet walked about slowly with the aid of a cane, and was not again confined to his room until January, 1892, when the dyspnea had become very distressing and persistent.

He was once more compelled to spend his days and nights in a chair, and the barest movement greatly intensified his orthopnea. His face was again congested and apparently fuller, although his body was very much emaciated. The veins of the neck and chest remained engorged, while those of the abdomen were numerous, being almost the size of a man's finger. The tumor steadily crowded the chest forward, the area of dulness increased, and over it tubular breathing could be heard. The heart was irregular and feeble in action, and showed the purring vibration. A pleural effusion was present and the liver-dulness was unreduced. In this condition the patient passed the month of January, 1892, unable to take but a step or two without being distressed for want of air. His mind remained clear. Defecation was exceedingly difficult. His appetite failed.

On about the 10th of February, 1892, with increasing exhaustion and very superficial panting respiration, he became steadily more oblivious to what was transpiring about him. In this exhausted condition he again assumed the recumbent posture. For the nearly two weeks

that elapsed until his death occurred he grew gradually more feeble and died very peacefully.

The autopsy was made on the day after death, in the presence of Drs. Didama and Sears. After section of the costal cartilages it was found impossible to raise the sternum at the point of penetration by the tumor. A portion of the sternum four inches in length and three in width was therefore cut out, the center of which was occupied by a portion of the tumor; this had infiltrated the bone from within and appeared upon its anterior surface as a growth two inches in length by one and a half inches in width and about one-half inch in thickness. The right pleural cavity contained about one quart of fluid. The tumor had so thoroughly infiltrated, and, in fact, become a part of the thoracic organs, that their removal could only be accomplished *en masse*. This being done, it was found that the tumor cemented the chest contents to the sternum by a hard, infiltrating nodular mass, which not only surrounded but literally invaded the venous channels leading to the heart. The trachea was compressed anteriorly and upon the right side, and was itself firmly adherent to the growth. The right bronchus was entirely imbedded. The tumor extended into and, in fact, absolutely through the right lung, separating the upper from the middle lobe by a rounded, projecting mass that extended downward a distance of five inches, encircling the descending aorta, and at its widest part measuring five inches in diameter. Throughout, the tumor presented lobulated outgrowths. Only the lowest portion of the inferior lobe of the right lung exhibited any patent air-cells; the remainder was a solid mass impenetrable to air. Anteriorly the tumor surrounded the arch of the aorta, constricting it and overlapping the upper portion of the base of the heart. Not stopping here, the tumor absolutely invaded the heart itself. A prolongation fully two and one-half inches in length, constricted at its center to such an extent as to be almost cut in two, extended into and almost completely filled the right auricle. Its presence had, no doubt, led to marked distention of the auricle, which was considerably dilated and its walls much attenuated. The growth invaded the heart-structure and was quite firmly adherent to the auricular walls. No secondary growths appeared in the liver. The left lung was free from invasion. The kidneys were normal. Dr. Sears made a microscopic examination of the tumor, and reported the growth to be a small round-celled sarcoma. In some parts the cells were very numerous, the inter-cellular substance slight in amount, and the bloodvessels thin-walled. In other parts the connective tissue was very dense and the bloodvessels more highly organized.

REMARKS.—I do not intend to prolong my report of this case by any extended remarks. I present the specimen, which better than any words makes manifest its most unusual features. I desire simply to emphasize the very rapid and serious manifestations of the disease during its early months. For two months following my first visit, at the close of July, 1890, its active development justified the prediction that death could not be long delayed. Yet, despite the fact that the tumor must have been steadily growing and constantly invading vital structures, as the vessels accommodated themselves to the pressure and collateral circulation carried the blood to the previously obstructed areas, a great respite was granted.

We cannot but marvel at the rare endurance of a heart invaded by a malignant growth that occupied one of its chambers almost to the exclusion of the entering blood-current. Tumors of the mediastinum are rare enough, but in reviewing the literature of the subject I have as yet failed to find one recorded that exhibits an invasion of the heart similar to that here reported.

GUNSHOT WOUND OF THE ABDOMEN DURING PREGNANCY; RECOVERY.

BY C. A. MILNER, M.D.,
OF WYOMING, IOWA.

WHILE Mrs. M., twenty-one years old, in the sixth month of pregnancy, was oiling a 32-caliber revolver, it accidentally went off. The ball struck a steel of her corset, was deflected, and entered the abdominal cavity on a line drawn from the left nipple to the anterior superior spine of the right ilium, three inches from the ensiform cartilage, thence it pursued an upward, backward, and outward course—passing through the skin, superficial fascia, the external and internal obliquus and transversalis muscles, both layers of the peritoneum, the external border of the central tendon of the diaphragm, one inch from the apex of the heart, the pleura, and lung, and became lodged in the lung at the posterior border of the serratus magnus muscle.

I was called five minutes after the accident. The woman, unable to lie down, was sitting on a couch, faint. I gave her a dram of whiskey in hot water. In a few minutes she could lie down on the couch. She immediately began to expectorate bloody, frothy mucus, and was in great pain. I gave morphine hypodermatically, and she could then lie on her side. There was some shock. The pulse was quick and strong. The woman was remarkably cool and self-possessed, and did not seem to fear the outcome of the accident. There was very little hemorrhage from the external wound, but more through the bronchial tubes.

I dressed the external wound antiseptically. After picking away foreign particles I washed the wound thoroughly with a solution of boric acid, dusted boric acid over the surface, and applied borated gauze and adhesive straps. The left half of the chest was strapped, to secure as complete immobility as possible. I directed the patient to lie upon the right side, so as to secure drainage through the bronchial tubes and the external wound. The chest was raised higher than the hips. I ordered some whiskey punch. The cough was very distressing. For its relief I gave a mixture containing syrup of squills, morphine, glycerin, chloroform, and hydrocyanic acid.

The pulse was 90, the temperature 100°, the respiration 25. The breathing was of superior costal type, and shallow. The bowels had acted on the morning of the accident. There was no vomiting. The stomach was empty. There was very little nervous disturbance. The woman was cheerful. At 9 P.M. I prescribed syrup of ipecacuanha and opium. The patient slept fairly well. I saw her every two hours on the following days. At 12 midnight the temperature was 100.5° F. At 2 A.M. the patient coughed up some bloody, tenacious sputa. Expectoration was difficult on account of pain. The pulse

was 100, the temperature 100.5° F. Headache was complained of. I administered a powder of acetanilide and caffein citrate, which afforded relief. The woman took some nourishment, including milk toast and a poached egg. After eating, I gave her pepsin and dilute hydrochloric acid to lessen peristalsis and aid digestion. Before eating, I gave her a capsule of iron chloride and glycerin. In case of traumatism and in pregnancy the white blood-corpuscles are increased, the red ones diminished in number, and the proportion of hemoglobin is diminished. Iron is therefore indicated. A greater amount of sodium chloride was added to the food than usual. Sodium chloride exerts a beneficial influence in cases of penetrating wounds of the thorax. Fetal movements were first felt during the day. The respirations were 28 in the minute. Diaphragmatic breathing was almost entirely wanting on the left side. The urine was high-colored and loaded with urates, uric acid, and phosphates; the chlorides were diminished.

There was no flatulence. The patient was absolutely quiet. At 9 P.M. the temperature was 100.8°, the pulse 100, of high tension, hard and wiry. Symptoms of localized peritonitis appeared. I ordered hot applications to the epigastrium, and gave powders of ipecacuanha and opium. There was no vomiting. The heart-sounds were intensified. I gave acetanilide, and the pulse became softer. During the night the cough-mixture was repeated twice. On the following morning the sputum was muco-sanguineous; the temperature was 99.8°. The patient still lay on the right side. She took egg-nog and toast, and passed a good day. I dressed the external wound. There was no suppuration, but evidence of occlusion of the external wound, which I dusted with boric acid and covered with borated gauze. At 11 P.M. there was great thirst, and the temperature was rising. There was more cough, and the breathing was panting and accelerated to 32 per minute. The face was flushed; the temperature was 101.5°. Evidences of pleuro-pneumonia appeared. By means of acetanilide and caffein citrate, I kept the temperature within 100° F. On the following day there was some sweating. The fever was less. The urine was scanty and high-colored. The appetite was good. The patient took milk and lime-water. At 5 A.M. I gave potassium acetate. At 11 A.M. the urine was increased in quantity. The proportion of potassium salts and chlorides was increased. Thirst was relieved by small pieces of ice in mouth. At 9 P.M. the temperature was 101° F.; cough had increased; the pulse was 100, bounding and full. The woman got some sleep during the day. The urine contained no albumin; its specific gravity was 1030. There was no pleuritic effusion. Some crepitation was to be heard. The respirations were 32, panting. Bronchophony was evident. Percussion revealed no abnormality. On auscultation, dry, crackling, and crepitant râles were heard at the end of inspiration. The patient did not sleep well that night.

On the morning of the next day the pulse was 96, the temperature 100.6°. The sputum was rusty. The woman took nourishment. There was slight dulness on percussion over the left lung. At 12 o'clock noon the woman took nourishment and some castor oil. There was slight dulness over the left lung, with increased vocal resonance in a localized area. The breathing was bronchial, 28 times to the minute. Moist râles and some gurgling were heard, but no bronchophony. The sputum was rusty and muco-purulent. No pneumonia-cocci were found, and but few pus-cells. In the afternoon the expectoration was easier and contained some broken-down tissue. On the next day the temperature was 100°, the patient slept better, and cough required less effort. A day later the temperature was 99.6°. The patient took milk and eggs. The sputum was muco-purulent. The external wound showed signs of cicatrization. The greater part of the drainage was evidently taking place through the lung. Strong coffee was ordered as a beverage to stimulate the arterial system, especially the uterine arterial system, and to lessen the amount of blood at the seat of injury.

The pregnancy seemed to exert a favorable influence on the outcome. The cutaneous circulation was good. Perspiration was free. The temperature was 99°, the respiration was 24; inspiration was deeper. On the next day the temperature was 98.8°, the pulse 80. Backache was relieved by massage. In the evening the temperature was 99°. Mucous râles and cavernous sounds were heard over the course of the bullet. The sputa was light in color, the breathing deeper—24 times per minute—and without pain. The affected side could now be moved. The movements of the fetus were again perceived. I could locate the ball, but at no time could detect amphoric breathing or gurgling over the site. There was perfect drainage through the lungs; consequently there was no indication for making an incision and extracting the ball, with the risks of infection. The ball finally became encysted. It caused no pain or inconvenience whatever. On the following day the temperature was 98.8° F., with very little cough. The appetite was good. The external wound was cicatrized. There was no pain on inspiration. The urine contained an increased amount of chlorides. The phosphates, uric acid, and kreatin were diminished. The evening temperature was 98.6°. On the next day the temperature was 98.4°. The patient was now convalescent, and sat up. Sixteen weeks later she gave birth to a perfectly formed and healthy female child, weighing seven pounds.

A CASE OF IDIOPATHIC PHLEBITIS.

BY JOHN O. BROWN, M.D.,
OF MINNEWAUKAN, N. D.

ON February 5, 1892, Mr. H., a Swede, seventy-two years old, presented himself, stating that about two weeks previously he had noticed a painful spot on the ulnar side of the left wrist, near the median line, at the site of which a small ulcer formed. A week later the anterior ulnar and basilic veins became painful and swollen so as to resemble thick cords beneath the skin, reaching from the ulcer at the wrist to the axilla. The man had had no chill, and the pain was not sufficient to prevent him enjoying sound and refreshing sleep. He appeared hale and hearty, and there was no indication of the absorption of pus. There was no history of syphilis.

Upon examining the arm I found considerable edema; the skin over the affected veins was of a coppery-red color, looking as if a broad stripe had been painted from the axilla to the wrist. On the forearm there was a sinus

following the course of the affected veins for a distance of about five inches, and discharging pus and serum at the ulcer on the wrist. Above this sinus were several swellings in the course of the affected veins. These swellings were directly over the inflamed veins, and fluctuation could be detected in them.

The case was diagnosticated as one of idiopathic phlebitis, by extension involving the surrounding tissues.

It was directed that the arm be carried in a sling during the day, and at night to be slightly elevated on a pillow at the side. Tincture of the chloride of iron was prescribed in fifteen-drop doses, to be taken in water before each meal. A generous diet was also advised. Each swelling along the course of the affected veins was freely incised, and the sinus was opened so as to allow thorough drainage. Wherever there was any pus I injected hydrogen dioxide (fifteen-volume solution). The sinus was thoroughly irrigated with the same solution. The irrigation was repeated daily for over a week, when I had the satisfaction of seeing the small abscesses heal. The sinus remained, but in no worse condition. The edema of the surrounding tissues had subsided, and there was no pain along the affected veins. The veins were not so thick as they had been. The coppery-red stripe over them gradually narrowed until it was obliterated in some places. The patient's appetite was good throughout his illness. He was given a solution of corrosive sublimate (1 : 2000) and a syringe, and instructed how to daily irrigate the sinus at home.

He returned once a week to have me look at his arm, and, as at the end of a month the sinus did not seem disposed to heal, I bandaged the arm to support the circulation. This had the desired effect, and the sinus soon healed.

According to Virchow, idiopathic phlebitis is a comparatively rare affection. Hamilton says that it may result from exposure to cold. Wyeth, in his recent admirable work on *Surgery*, says that, from whatever cause it may proceed, it usually affects the veins of the lower extremities.

Taking into consideration the age of the patient—seventy-two years—it seems to me that the cause of the condition in the case here reported lay in senile changes in the enlarged veins, in conjunction with exposure to cold while the patient was engaged in his accustomed light farm-duties in the winter-time. The sluggishness of the flow through the enlarged veins at the wrist resulted in stasis of the blood, which being acted upon by intense cold, probably became coagulated so as to form a thrombus. This thrombus, acting as a foreign body, gave rise to inflammation in the tissues surrounding the vein at a point exposed to the most movement—*i. e.*, the wrist. Here was the initial lesion, and from this the inflammation spread along the vein.

On the first of May the affected veins still felt like heavy cords beneath the skin, and I believe that the function of both veins has been obliterated throughout the extent that was inflamed. Had the inflammation extended only a short distance along the arm instead of into the axilla, I would have considered the wisdom of exsecting the whole of the inflamed portion; but, as there was no means of deciding how close to the heart the inflammation had extended, the operation would have been of doubtful propriety.

MEDICAL PROGRESS.

A New Osteoplastic Procedure in the Treatment of Spina Bifida.—BOBROFF (*Centralbl. für Chirurgie*, 1892, No. 22, p. 465) has reported the case of a boy eight years old, with a sacral myelo-meningocele, in which he employed a new procedure. The sac had a diameter of almost two inches at its base and a height of more than two inches and a half. The sac could be emptied by pressure, which caused pain and vertigo. Since birth there had been rectal and vesical incontinence. The skin-covering was removed between two semilunar flaps. Some nerve-fibers of the cauda and the termination of the cord were freed from the inner surface of the sac and deposited in the sacral canal. The lining membrane of the sac was now removed. From the adjacent crest of the ilium a segment of bone, large enough to close the defect in the sacrum, was removed, but permitted to remain adherent to its nutrient attachments, the periosteal surface presenting posteriorly. For the sake of security, two bone-sutures were introduced. The wound was then closed and provision made for drainage inferiorly. The boy was made to assume the prone position. For a few days there was slight elevation of temperature and considerable discharge. The drainage-tube was removed at the expiration of two days. In the course of two months the transplated segment of bone had become quite consolidated. The sphincters were at first stimulated by faradism and then by galvanism. At the expiration of five months considerable improvement had taken place.

Steel in the Iris for Twenty-seven Years.—As a sequel to the report of a case in THE MEDICAL NEWS of October 10, 1891, p. 428, in which a bit of steel had been lodged in the iris for twenty-seven years, KEIPER (*Indiana Medical Journal*, July, 1892, p. 8) records the further history. The man presented himself with an attack of intense inflammation of the affected eye. The employment of leeches, atropine, and hot fomentations not proving sufficient, an attempt was made to remove the foreign body by means of an electro-magnet. As there appeared to be danger of bringing away the adherent iris with the bit of steel and of dislocating the lens, an iris-forceps was employed, and the piece carefully removed by teasing. The fragment of steel was $\frac{3}{16}$ of an inch long and quite irregular. The ultimate result was eminently satisfactory.

Reinforcement of the Knee-jerk.—ROSENBACH (*Centralbl. f. Nervenheilk. u. Psychiatrie*, July, 1892, p. 336), recommends that in cases in which the knee-jerk cannot be elicited by simply striking the patellar tendon or by striking the tendon while the upper extremities are engaged in some voluntary muscular movement, the patient be directed to rapidly read aloud while the tendon is struck. An absence of response is conclusive. By the act of reading the attention is so engrossed that the influence of cerebral inhibition and of voluntary muscular effort is removed.

The Bacillus of Chancroid.—At a meeting of the French Society of Dermatology, QUINQUAUD (*La Médecine Moderne*, 1892, No. 28, p. 457) reported that in a number

of cases of chancroid he had found the bacillus described by Unna. The same organism was always found in large numbers. It was rod shaped, with rounded extremities, and usually arranged in chains. It was present in the depth of the tissues, especially in the lymphatic and intercellular spaces, but never within the cells themselves. Its staining was difficult, and was best secured by a carbolized blue.

A Delicate Reaction for the Presence of Albumin in the Urine.—SPIEGLER (*Internationale klin. Rundschau*, 1892, No. 27, p. 1112) recommends the following test-solution for the detection of the presence of albumin in urine: Tartaric acid, 10 grains; mercuric chloride, 20 grains; white sugar, 50 grains; water 1 ounce. The urine is filtered, slightly acidulated with acetic acid, and carefully made to overlay the test-solution in a test-tube. If the urine contain albumin, a sharply-defined white ring appears at the line of contact. Peptone gives no response, while propeptone does.

Death During Pregnancy Caused by a Swallowed Spoon.—LIHOTZKY (*Centralbl. f. Gynäkol.*, 1892, No. 26, p. 489) has reported the case of a woman, thirty-three years old, in whom a rapidly fatal peritonitis developed in the eighth month of pregnancy. At the autopsy, the duodenum was found perforated by a silver spoon that had been swallowed two and a half years previously, although no symptoms had been present in the interim, and the event had almost been forgotten.

Appendicitis.—POTHERAT (*Rev. Gen. de Clin. et de Thérap.*, 1892, No. 28, p. 440) expresses the opinion that surgical interference for the relief of appendicitis is indicated in case of perforation, however small the chance of success appears to be; in case of suppuration in the right iliac fossa; in case of recurrent paroxysms that increase in frequency and intensity. The dangers of operation are not greater than the risks of suppuration or perforation.

THERAPEUTIC NOTES.

The Cure of Tetanus with the Antitoxin Obtained from the Serum of an Immune Animal.—CASALI (*Centralblatt f. Bakteriol. u. Parasitenk.*, xii, 2 u. 3, p. 56) has reported the case of a woman, twenty-two years old, who, seven days after having received a lacerated wound of the right foot, and walking a considerable distance over damp ground with unprotected feet, presented manifestations of developing tetanus. For a week, under ordinary treatment, the symptoms progressively increased in intensity. Specific treatment was now proposed and assented to. Tetanus-bacilli were found in the pus from the wound on the foot. Six injections of the antitoxin prepared from the blood of a dog immune to tetanus were made at intervals of twelve hours; the first five contained 25 centigrams, and the sixth 15 centigrams. Improvement soon set in, and was progressive to perfect recovery.

The Toxicity of Exalgin.—BROADBENT (*Lancet*, No. 3596, p. 256) has reported the case of a man, twenty-six years old, who presented toxic symptoms after the ingestion of twelve grains of exalgin for the relief of neuralgia. Four grains were taken in the evening, with relief from the pain, though giddiness was felt. The pain returning early on the following morning, twelve grains more were taken. The man immediately became dazed, fell to the floor, and remained unconscious for half an hour, during which he frothed at the mouth. The pulse was feeble and slow, while epigastric pain and noises in the head were complained of. The subcutaneous injection of $\frac{1}{10}$ grain of apomorphine was followed by thorough evacuation of the stomach. Subsequently, $\frac{1}{500}$ grain of strophanthin and ten minims of ether were administered, and the man slowly rallied.

Methyl violet in the Treatment of Diphtheria.—JAENICKE (*Therapeutische Monatshefte*, 1892, H. 7, p. 340) has employed a saturated solution of methyl-violet in the treatment of diphtheria. The application is made by means of a piedget of cotton, and is repeated in the course of from two to five hours, as soon as the discoloration has disappeared. Methyl-violet exerts an inhibitory influence upon the development of the diphtheria-bacilli, and possesses the advantage of being relatively non-toxic.

HOERING (*Memorabilien*, 1892, H. 6, p. 327) reports fifteen cases of diphtheria in the treatment of which he employed topical applications of a three per cent. solution of methyl-violet, with most satisfactory results. Two of the cases that came under observation in a condition of profound intoxication died.

Pheno-salyl: an Antiseptic Mixture.—The following combination is recommended as an active and soluble antiseptic:

℞.—Acid. carbolic.	. . . .	ʒjss.
Acid. salicylic.	. . . .	gr. x.
Acid. lactic.	. . . .	gr. xx.
Menthol.	. . . . .	gr. j.—M.

The three acids are warmed to liquefaction, and the menthol is added. The mixture is to be diluted as required.—*Annales de l'Institut Pasteur; Journ. de Méd. et de Chir. prat.*

Potassium Bichromate as an Expectorant.—Based upon an extended experience, HUNT (*Brooklyn Medical Journal*, 1892, No. 8, p. 516) recommends the employment of potassium bichromate as an expectorant, especially in catarrhal conditions of the respiratory mucous membrane. The remedy is best administered by rubbing up one grain with nine grains of sugar of milk, and adding the desired number of teaspoonfuls of water. A child a year old may be given from gr. $\frac{1}{60}$ to gr. $\frac{1}{20}$, at intervals at first of ten or fifteen minutes, but subsequently less frequently.

Intra-uterine Injections of Glycerin to Stimulate Contractions of the Uterus.—PELZER (*Archiv für Gynäkologie*, Bd. xlii, H. 2, p. 220) reports a number of cases in which intra-uterine injections of glycerin were employed to stimulate contractions of the uterus, both in premature labor and in labor at term. From an ounce and a half to three ounces of glycerin were, by means of a syringe and a catheter, introduced between the membranes and the walls of the uterus as high up as possible, without rupture of the membranes.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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Subscription Price, Including Postage in North America.

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SATURDAY, AUGUST 27, 1892.

AS TO A FOUR YEARS' COURSE.

AN esteemed correspondent calls our attention to a number of facts that he deems militate against the position taken by THE NEWS in regard to the compulsory four years' course. At Ann Arbor, which was the first college to adopt the four years' course, as well as at Harvard and Columbia, the term is already nine months, and at the University of Pennsylvania the term is seven months, and will be lengthened; yet at all of these institutions a course of three years is found to be too short in which to teach all that modern medicine demands, and what is taught overworks the student.

The University of Pennsylvania, like Harvard, has adopted a rule admitting to the second year's class men with a college degree who are qualified in general biology, human and comparative anatomy (including embryology and histology), botany, chemistry, and physics; such students to make up materia medica and pharmacy. Exception is likewise taken to our criticism of chemical teaching in so far as it applies to certain schools.

We did not mention the facts cited by our correspondent, because we were dealing with a general question and cited special schools but by way of illustration, not with any view to special criticism.

That the colleges named have adopted the nine-months' term proves that we are correct in our position that all colleges should adopt it.

That advanced standing is granted to qualified students confirms our position that the so-called first year in our four-year courses is virtually a preparatory course, and should be named and organized accordingly. Even PROVOST PEPPER, than whom none has given greater proof of devotion to the higher education, and whose courage is as undoubted as his opportunities for observation are unexcelled, felt constrained in his address at Boston to question the practical wisdom of lengthening the medical course to four years, at the same time that the requirements for admission were increased. And has not PRESIDENT ELIOT, in advocating the curtailment of the course in arts to three years, virtually expressed the same fear?

But it is in the preliminary training, rather than in the teaching in our medical schools, that America in now at fault.

Thus, great as is the ability and merit of certain teachers, and advanced as are the problems with which, *e. g.*, PROFESSOR VAUGHAN deals, and doubtless teaches to the chosen few that can comprehend them, the broad fact remains that the general course at medical colleges cannot deal with that advanced biochemistry that the time demands, simply because the students have not done the preliminary work necessary to its understanding.

The place to begin to reform medical education is at the foundation, not at the roof. We are but confirmed in our opinion that the proper plan is to change the standard of entrance-qualification by increasing the breadth of the preliminary education demanded, thus making that preliminay standard a scientific rather than a merely literary one; to give two terms of nine months each of recitations and laboratory-work, with a modicum of clinical lectures, and a third term of laboratory and hospital work in sections, with clinical lectures for the class as a whole. If it were practicable—as we admit it is not—the degree given for this should be Bachelor of Medicine; and the doctorate should be won by additional work in investigation, in literature, or in practice.

This plan would, of course, require a largely increased teaching staff, while the number of students would be diminished; it might necessitate the consolidation of rival schools here and there; and might cause the death of other schools; none of which events would be a public misfortune.

THE TELEOLOGY OF SUNBURN AND TAN.

THE extreme heat of the summer through which we are now passing has called forth from all sides demands for preparations for the prevention of sunburn and tan. Divers unguents and lotions have been recommended, but with these we shall not deal, choosing rather to call attention briefly to the pathology and to the possible teleology of the affections.

When delicate faces and arms are exposed to sunlight there develops a hyperemia more or less acute, and in some even a severe dermatitis, with induration, heat, redness, and edema. If the burning be intense, desquamation follows, and later there is an increased deposition of pigment in the deep portion of the rete Malpighii.

The pathologic process is probably to be explained by a necrosis of cells, resulting from the action of the heat and light. Such a cell-death would be accompanied by the setting free of certain substances, some of which are positively chemotactic. Hence may result the ordinary phenomena of inflammation, and, following the subsidence of the inflammatory process, pigment-making cells manufacture quantities of dark pigment-granules, and store them them up in connective-tissue cells that lie between the columnar epithelial cells that rest upon the basement membrane separating the epidermis from the cutis vera. When the burning takes place more slowly such a deposition of pigment may result without the occurrence of acute inflammation.

From a teleologic standpoint some new light has been thrown upon this matter of pigment-formation by the ingenious speculations of BUCHNER ("Ueber die Schutzstoffe des Serums," *Berliner klin. Wochenschrift*, 1892, No. 19) in a recent article on the protective substances of the blood-serum. The fresh blood-serum of man and animals, besides possessing the power of quickly killing living bacteria (GROHMAN, NUTTALL), and of destroying the red blood-corpuscles of an animal of a different species (LANDOIS), is by some believed, under certain circumstances, to exert an antitoxic action upon the poisons produced by the microörganisms of a given disease.

BUCHNER has shown that these properties of the serum—germ-killing, globulicidal and antitoxic—lie in certain obscure chemical bodies of extreme instability. Warming the serum for half an hour at a temperature of 55° C. destroys them, as does also the action of diffuse daylight, and more quickly still the rays of direct sunlight.

While, therefore, light is an important element in the growth and development of most animals and plants, yet light in the wrong place would probably have a deleterious influence, and it seems as if it were by no accident that certain organs have been buried in the interior of the body and covered with a protecting integument.

In the South the protective powers of the skin are increased by the presence of intense natural pigment-deposits, and we are tempted to regard the sunburn and tan of spring and summer as an approach to such a protective pigment-deposition, the pigment in these cases probably having its origin in disintegrated hemoglobin.

SELECTION.

HIGHER MEDICAL EDUCATION.

IF we are to have a continous advance in the standard for admission to our colleges, and then to exact a prolonged course of medical study, it will break the backs of the best schools. We cannot alter the social habits of a nation to make them conform to our notions of what the standard of teaching in this or that department shall be; we cannot reconcile any large proportion of our fellow-citizens to seeing their sons or their wards delay, until the age of twenty-five, twenty-six, and twenty-seven years, entrance upon practical life in order that they may win a B.A., or a B.S., and then get their M.D. in a four-year medical school. I am as convinced, as of anything, that it is absolutely necessary for the medical schools that are going to exact a four-years' course to make provision for obtaining the double degree in less than eight years. That this must be accomplished in some way I feel absolutely certain.

Do not let us handicap medical education too heavily. Dot not let us ask our Faculties to turn out thoroughly trained men, trained at the bedside, giving that clinical instruction which alone renders a man fit to take charge of suffering humanity, and deny them the laboratory facilities which are necessary. Do not ask them to set a high standard of admission; a higher standard of entrance examinations, to pass a second examination before a State Board of Examiners, and put the whole of this on at the same time that we appeal to them to take a college course for four full years. If you provide your medical school with endowment, you will accomplish this for a limited number of the highest grade of students, but you will shut out from your doors those whom I would gladly see here, not to swell your ranks, but because I hold that no matter where the doctor goes to practise his calling—and the more remote the point, the further from the centers of education, the further from the chances of professional assistance, the more essential does his thorough, practical equipment become—you will shut out from your doors hundreds of those who are

the very men we would be glad to see here. You need more fellowships, more scholarships, in your medical department to-day, upon its advanced scale of medical instruction, than you need in any other department of the university. You must have endowment for your hospital. You must have endowment for your professors' chairs —DR. PEPPER, *Boston Medical and Surgical Journal.*

REVIEWS.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE FOR THE USE OF STUDENTS AND PRACTITIONERS. By R. C. M. PAGE, M.D., Professor of General Medicine and Diseases of the Chest in the New York Polyclinic, etc. Pp. 568. New York: Wm. Wood & Co., 1892.

THE chief objects of this book, as stated in the preface, are to facilitate clinical instruction and to enable both physician and student to obtain in brief the most practical as well as the most scientific view of the various subjects considered in a work on medicine.

Accordingly, we find the articles touching only on the chief points in pathologic anatomy and etiology, for instance, while the treatment outlined is fully in accord with recent advances; not only are drugs mentioned, but, in many instances, both the prescription and dose are given.

We can hardly endorse the statement "that many persons addicted to the opium-habit overcome it by sheer force of will-power." Such has not been our experience, nor does it coincide with the recorded testimony of most clinical observers.

The reviewer's notice has often been directed to a frequent error that occurs not only in medical books and periodicals, but also on druggists' labels, etc., of using *spirits* for *spirit;* for instance, sweet *spirits* of niter, aromatic *spirits* of ammonia. This error is of frequent occurrence throughout the pages of the present volume.

In the article on "Malarial Fevers" no mention is made of the diagnostic value of the presence of the blood-parasites that have been studied and described by Laveran, Marchiafava and Celli, Golgi, Osler, Dock, and others.

The temperature in typhoid fever, when it rises above 103° F., is directed to be treated in one of two ways: (1) by the internal administration of drugs, and (2) by the application of cold by some means.

Among the drugs mentioned, the author prefers, in the order named, antifebrin, phenacetin, antipyrin, and quinine. In our experience the employment of depressing agents, such as the first three drugs, should be reserved for use only after a fair trial of well-known remedies, such as quinine, cold or tepid sponging, etc. If any of the coal-tar products is used, antipyrin is, we believe, the least dangerous and the most successful.

In conclusion, we think that the present volume will be found acceptable to the busy practitioner as a work for easy and ready reference to obtain a practical view of the latest treatment of disease; but we cannot advise the undergraduate to procure it for use as a text-book; for we are among those who believe that the foundation of a student's knowledge of medicine should be as thorough as possible—especially in the symptomatology, etiology, pathology, and diagnosis of disease—on which points Dr. Page's book, as it were, is a mere compend. This fact is stated, not to the discredit of the work, for it is an excellent medical treatise, and well worthy of perusal by the practitioner or post-graduate student.

CEREBRAL MENINGITIS. By MARTIN W. BARR, M.D., Resident Physician in the Pennsylvania Training School for Feeble-minded Children, etc. Pp. 93. Detroit: George S. Davis, 1892.

WHILE the crudities of this little brochure might perhaps have been overlooked in a graduation-thesis, they cannot escape criticism, formally presented to the profession as they are. The work gives evidence of the expenditure of a good deal of literary research and is deserving of a much better presentation than it has received. There is little evidence of analysis, though there is considerable citation of authority. When it is stated that the arachnoid "is never the seat of inflammation," the question naturally arises as to the authority for so emphatic a negative statement, while there is nothing to remove the doubt as to its accuracy. By a literal translation Morgagni is made to speak of an "exudation of gelatin." In another place, dropsy of the ventricles is quoted as being "caused by inflammation of the meninges or bloodvessels." It must require a refinement of discernment to recognize *internal* cephalalgia. The following remarkable recommendation is made for the treatment of pachymeningitis: "Bromides and narcotics are very useful, given *ad libitum* when necessary, to quiet the cerebral excitement." Elsewhere it is stated that "the most valuable hint in regard to the treatment of hematoma is this: Decide upon your line of treatment and do not change it, except for good and sufficient reasons. Never give up hope until the patient is absolutely dead." Masturbation is suggested as a possible cause of meningitis. The tautology of *traumatic injury* finds repetition. The adjective verticalar is manufactured to indicate the convexity. The synonyms of the various conditions discussed are presented in seven languages. We fear that Dr. Barr has brought forth a premature production the vitality of which is exceedingly doubtful.

CORRESPONDENCE.

THE HYGIENE OF MENSTRUATION.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of April 23d I have noticed a reference to a paper concerning "Some Results of Withdrawal," by Dr. L. Bolton Bangs, of New York. I am glad to see the pernicious practice condemned. I have had under my care several patients, some of them married people, who have received considerable injury from this procedure. One woman's nervous system was very seriously injured by this unnatural practice of her husband. The habit is much more frequent than we would be led to suppose from the scanty literature on the subject. Many married people make a practice of the act if, for any reason, connection takes place during the menstrual period, and others, on all occasions.

A reference to the old biblical laws may be interesting in this connection.

We read in the fifteenth chapter of the third book of Moses, called Leviticus, the following laws concerning the menstrual woman:

"19. And if a woman have an issue, and her issue in her flesh be blood, she shall be put apart seven days: and whosoever toucheth her shall be unclean until the even.

"20. And every thing that she lieth upon in her separation shall be unclean: every thing also that she sitteth upon shall be unclean.

"21. And whosoever toucheth her bed shall wash his clothes, and bathe himself in water, and be unclean until the even.

"22. And whosoever toucheth any thing that she sat upon shall wash his clothes, and bathe himself in water, and be unclean until the even.

"23. And if it be on her bed, or on any thing whereon she sitteth, when he toucheth it, he shall be unclean until the even.

"24. And if any man lie with her at all, and her flowers be upon him, he shall be unclean seven days; and all the bed whereon he lieth shall be unclean.

"25. And if a woman have an issue of her blood many days out of the time of her separation, or if it run beyond the time of her separation; all the days of the issue of her uncleanness shall be as the days of her separation: she shall be unclean.

"26. Every bed whereon she lieth all the days of her issue shall be unto her as the bed of her separation: and whatsoever she sitteth upon shall be unclean, as the uncleanness of her separation.

"27. And whosoever toucheth those things shall be unclean, and shall wash his clothes, and bathe himself in water, and be unclean until the even.

"28. But if she be cleansed of her issue, then she shall number to herself seven days, and after that she shall be clean. . . .

"31. Thus shall ye separate the children of Israel from their uncleanness; that they die not in their uncleanness, when they defile my tabernacle that is among them."

Lieut. Totten and other writers have endeavored to demonstrate that our North American Indians are the remnants of the lost tribes of Israel, and they certainly present powerful arguments to support such a view. Is not the custom prevailing among our Indians of considering the menstruous women "unclean" something more than a mere coincidence? A tradition so powerful and a dread of disobedience so intense, that the isolation of a menstruous women is never broken by the wildest and most lawless of savages, certainly must attract our serious attention.

Among the Anglo-Saxons I think we may safely assert that a menstruating woman can only with some little difficulty conceal the fact of her "sickness." Certainly medical men must often notice the peculiar bearing and the facial appearance, besides the physical symptoms, of a woman menstruating, and very often even the disgusting odor. While to our notice as medical men it frequently comes about that we are informed of men of all stations in life cohabiting with women during menstruation, I think it can be safely asserted that among men of ordinary education, refinement, and good taste, and even among the comparatively poor and ignorant, a menstruous woman is let alone until she is "clean." It seems to me that this custom of isolation is returning. Married women leave the conjugal bed and retire for a few days to some "spare room," and after a complete bath and change of linen, and the use of perfumery and other methods of purification, return to married life again. This is certainly as it should be, and is the opinion of many medical men I have no doubt.

In Germany, at least, we find the regulations concerning the care of menstruating girls well worth imitation in this country. There a girl at such times retires and generally goes to bed, and remains in bed for at least from forty-eight to seventy-two hours, if not longer. It is no shame to be a normal woman in Germany, and the function of menstruation is encouraged and protected, not ignored or interfered with, as it is so often in the United States. It is not the purpose of this communication to write upon the subject of menstruation as it applies to the care of our American patients, but quite enough has been stated to cause any thoughtful physician to repeat the warnings he has undoubtedly given his patients, time and again, to insist upon greater maternal watchfulness in the development of our girls, and to encourage that respect for womanhood and motherhood that was once so prominently a type of the honor and manhood of ancient Romans, and that perhaps in a higher sense is the real characteristic of Anglo-Saxons. Certainly from our worthy aborigines, the native red Americans, we can learn lessons on hygiene, as well as in many other departments of life. In encouraging attention to the laws of hygiene we directly improve public morals. Hygiene and immorality are more or less incompatible. Where education is best developed, immorality is least observable. Unsanitary conditions and filth are synonymous terms. The normal, healthy body is very likely to have a high standard of morality governing it. Therefore, the study of hygiene and the dissemination of hygienic knowledge are powerful aids in the missionary work of religion. The physician, then, in the conscientious discharge of his duties, is a valuable factor in the welfare of the community in which he lives. Cleanliness is next to godliness—a truism that medical men interpret more clearly than any others.

Respectfully,

W. THORNTON PARKER, M.D.

BEVERLY, MASS.

WHAT CAUSED THE FEVER?

To the Editor of THE MEDICAL NEWS,

SIR: In the early morning of April 1, 1892, I delivered Mrs. T., a primpara. The labor was normal and unusually easy. The pain lasted only about three hours. When I was called, the head of the child was clearly visible; *no examination was therefore necessary*. The placenta came away spontaneously in about twenty minutes. I used the secundines in a demonstration given the nurse, and I am positive that no portion remained in the uterus. There was no laceration, excepting a very minute tear of a small remaining portion of the

hymen. No injections were given, as none seemed indicated. Antiseptic pads were used.

Until the sixth day the patient's progress seemed absolutely perfect. The appetite was good. The bowels moved naturally. There was no fever. The supply of milk was abundant. The pulse was strong and regular. The after-pains were not sufficiently severe to demand attention. Involution progressed remarkably fast, and but for slightly broken sleep, not troublesome enough to alarm me, there was nothing to indicate that my patient would not be up in an unusually short time. At noon of the sixth day fever suddenly appeared, though the feeling of malaise was not sufficiently pronounced to make the young mother, an intelligent woman, think that there was anything wrong. Thinking the rise of temperature (to 105.5°) might possibly be due to decomposing coagula, with a new catheter I washed out the uterus with a 1 to 5000 bichloride solution, using a gallon of water, which returned clear, the discharges having almost ceased. There was no fetor whatever; no tenderness in the iliac region. The fundus of the uterus rose a little above the pubic bone. At 7 o'clock on the same evening the patient had one of the severest chills that I ever saw, after which the fever began to rise so alarmingly that I gave thirty grains of quinine, in two doses, half an hour apart. In the morning the temperature was normal. My satisfaction was short-lived, for at my evening visit I was obliged to record a body-heat of 106.5°. I gave quinine in the same dose as before, again flushed the uterus, with negative results, and on the morning of the ninth day found that my efforts had only succeeded in lowering the temperature to 103.5°. Quinine disagreed with the stomach; the nervous condition was bad; and the outlook seemed generally discouraging.

I was utterly unable to find any cause for my patient's condition, and thinking another case of puerperal fever might have occurred in the room we were occupying, I directed that she be moved into the large airy parlor, of which the air was to be kept very cool and frequently changed. Over her head I placed Magill's head-cooler, and ordered small doses of quinine, to be repeated at such intervals as to act as a steady tonic without disagreeing with the stomach. The fever continued very high, the temperature ranging between 106°, 105.5°, 104°; but the heart was steady, and the ability to retain nourishment (milk) was so good that I was encouraged to use acetanilide as an antipyretic, at first, commencing with three-grain doses, which never failed to depress the temperature at least two degrees, and discontinuing when the temperature fell to a safe limit. After a time, finding that no unpleasant effects followed, and that by the use of the agent my patient's nervous system was quieted, while the heart and stomach were undisturbed, I decided, if possible, to lower the temperature to nearly normal, and endeavor, by means of the acetanilide, to hold it at as nearly that level as seemed advisable. I commenced giving the drug at four-hour intervals, for I found that any effect produced lasted about that time. I continued this dose (three grains) night and day. Improvement was thence uninterrupted. My patient's jaw, which had been set so that I could with difficulty introduce my thumb into her mouth, began to relax. The temperature did not again rise above 100°; the action of the heart slowed, and the nervous system became more steady. Three days after I commenced the administration of acetanilide I stopped all medication except small doses of sulphonal to produce sleep, and no bad symptoms of any importance have since been noted.

A convert to the teaching that in private practice such cases are almost without exception avoidable, I am not a little chagrined by the fact that I can in no possible way account for the inception of this fever. I can recall no point at which possible antiseptic precautions were omitted. No portion of the secundines was retained; no coagula collected; no fetor or tenderness existed; no exposure had taken place; the breasts remained soft throughout. My nurse was careful and capable, and neither she nor myself had within two years attended a case of puerperal fever. Add to all this the fact that until the seventh day the puerperium was in all possible ways satisfactory, and I am entirely in the dark as to the cause that furnished reason for such alarm. I append a copy of my temperature-chart, hoping that someone wiser than myself will enlighten me.

	9 A.M.	1 P.M.	5 P.M.		
Thursday,	.....	105.5°	.....	Chill, ½ hr. (severe).	In evening 30 gr. quinine.
Friday,	98.5°	106.5	... ..	.....	" " "
Saturday,	103.5	103 5	105°	.....	Small tonic doses quinine.
Sunday,	106	103	103.5	2 qts. milk	
Monday,	104.5	103.5	.....	in 24 hrs.;	
Tuesday,	.....	102	101	bowels	Quinine as tonic; acetanilide (3 gr.) when fever rose above 103°.
Wednesday,	102	102	105	moved	
Thursday,	104.5	103.5	104	every	
Friday,	101.5	104 5	105	third day.	
Saturday,	99.5	100	104	by enema.	
Sunday,	.....	103	105	Chill, 10 A.M. (mild).	
Monday,	100.5	98	99.5	.....	Acetanilide (3 gr.) every four hours.
Tuesday,	98	97 5	98	.....	
Wednesday,	98	98	98	.....	
Thursday,	98	98	98	.....	

Respectfully,

KATHARINE BERRY, M.D.

LA CROSSE, WIS.

THE STUDY OF ANATOMY FROM THE PHYSIOLOGIC STANDPOINT.

To the Editor of THE MEDICAL NEWS,

SIR: I have often wondered why many medical students think that human anatomy is a dry and uninteresting study. The human body is the most wonderful piece of mechanism in the universe. In it we find a machine that is self-energizing and self-propelling; that feeds itself and at the same time consumes and carries its own fuel; that lubricates itself during its motions, and removes from it, by its own action, the waste matter resulting from its own disintegration.

If a piece of machinery could be made by human hands embracing one tithe of the perfection to be found in the human body, all mankind would hail it as a most wonderful achievement. If such be the case, may not the lack of interest shown by medical students in the study of anatomy be due to errors in our method of teaching this study?

To my mind, the first and most striking error to be found in the usually adopted method of teaching anatomy is the lack of system. Thus, in taking up the study of chemistry, we always begin by investigating the proper

ties of the gases and simple elementary bodies; thence we proceed gradually to build up the more complex compounds. An analogous method is employed in the study of botany, geology, and, in fact, in every branch of natural science, without exception.

Now, why do this in every other branch of science, and then adopt, as we do, such an entirely different method in the study of human anatomy? As a rule, we commence with the study of the adult human body, the most wonderfully complicated and marvellously organized living organism. Our usual method resembles what would be the case if, in the study of chemistry, we should commence with the study of the complex chemic carbon compounds, in place of beginning, as we always do, with the simple elementary bodies, and then gradually building up from them the compounds produced by the union of the diverse molecules.

My idea would be to entirely reverse this method of teaching. In place of beginning with the adult human body, I would begin with the human ovum in its elementary and unimpregnated state. First, I would describe the changes in the ovum occurring immediately after impregnation, then the development of the two primary layers of the ovum (the epiblast and the hypoblast), with the tissues and organs produced by them. After this, I would give the development of the mesoblast, or middle layer of the ovum, and then give the tissues and organs developed from it. In this way we would have a system of human anatomy that would be worthy of taking its place among the exact sciences.

Some great genius will do this some day soon, and we will all wonder why it was not done long ago.

Respectfully,

ROBERT REYBURN, A.M., M.D.

WASHINGTON, D. C.

NEWS ITEMS.

Presentation to Sir George Buchanan, F.R.S.—Sir George Buchanan has lately resigned the post of Medical Officer of the English Local Government Board. A committee has been formed with a view to forwarding a movement for enabling those interested in public health to give expression to the high estimation in which they hold the important work which Sir George Buchanan has done, and for affording some opportunity for the recognition of his conspicuous services in the cause of preventive medicine.

A subscription list has been opened with a view to presenting to Sir George Buchanan some permanent memento of the esteem in which he and his work are held.

Subscriptions (not to exceed two guineas from each contributor) may be sent to the Honorable Secretaries, W. H. Hamer, Ladywell, 69 Dartmouth Park Hill, London, N.W.; J. C. Thresh, The Limes, Chelmsford, Essex, or to Dr. John S. Billings, Army Medical Museum and Library, who has been authorized to collect funds for the purpose in the United States.

Vivisection.—At the last annual meeting of the British Medical Association a resolution was proposed by Mr. Joseph Hutchinson and unanimously adopted, "That this general meeting of the British Medical Association records its opinion that the results of experiments on living animals have been of inestimable service to man and to the lower animals, and that the continuance and extension of such investigations are essential to the progress of knowledge, to the relief of suffering, and the saving of life."

The American Electro-therapeutic Association will hold its second annual session at the Academy of Medicine, New York, October 4, 5, and 6, 1892. Dr. W. J. Morton, of New York, is President, and Dr. H. R. Bigelow, of Philadelphia, Secretary.

A Semmelweiss Memorial.—It is proposed to establish an international memorial in honor of Semmelweiss, who in 1847 recognized the infectiousness of puerperal fever and adopted practical measures that led to a decided reduction in the mortality from this source.

Dr. W. Thornton Parker will deliver the course of lectures on Medical Jurisprudence in the College of Physicians and Surgeons, Chicago, during the approaching session of 1892–93.

Women Eligible to Membership in the British Medical Association.—At the recent meeting of the British Medical Association the rule excluding women from election to membership was revoked.

Dr. John Deaver, one of the leading physicians of Lancaster County, died August 22d, at Buck, Pa., sixty-five years old. He was the father of Dr. John B. Deaver, of Philadelphia.

Dr. Frank P. Norbury has been elected Professor of Nervous Diseases in Marion Sims College, St. Louis.

Rudolf Demme, the well-known pediatrist, died recently at Berne.

BOOKS AND PAMPHLETS RECEIVED.

Essentials of Medical Diagnosis. By Solomon Solis-Cohen, M.D., and Augustus A. Eshner, M.D. Philadelphia: W. B. Saunders, 1892.

The Ophthalmometer of Javal and Schiötz, and the Diagnosis of Astigmatism. By J. H. Woodward, M.D. Reprint, 1892.

Ophthalmia Neonatorum. By C. Veasey, M.D. Reprint, 1892.

Annual Announcement and Catalogue of the Baltimore Medical College. Session 1892–93. Baltimore: King Brothers, 1892.

Indian Types of Beauty. By R. W. Shufeldt, M.D. Reprint, 1892.

Pulmonary Atelectasis as a Cause of Anemia. By Albert Abrams, M.D. Reprint, 1892.

Catalogue of the University of Pennsylvania for the Session of 1891–92, Department of Medicine. Philadelphia: University of Pennsylvania Press, 1892.

The Pathological Anatomy of Acute Arsenical Poisoning. By Ludvig Hektoen, M.D. Reprint, 1892.

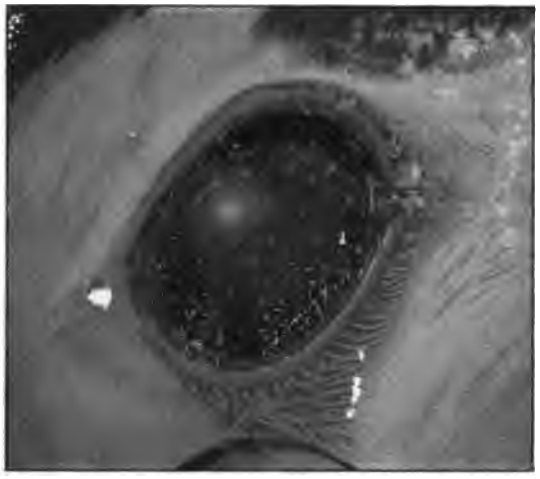
Guy's Hospital Reports. Edited by N. Davies-Colley, M.A., M.C., and W. Hale-White, M.D. Vol. XLVIII, being Vol. XXXIII of the Third Series. London: J. & A. Churchill, 1892.

The Medical and Dental Register-Directory and Intelligencer of Pennsylvania, New Jersey, Delaware. George Keil, Editor. Philadelphia: George Keil, 1892.

Proceedings of the Philadelphia County Medical Society. Vol. XII, 1891. T. B. Schneideman, M.D., Editor. Philadelphia: Printed for the Society by Wm. J. Dornan, 1892.

ALL ANIMALS INOCULATED IN EYE WITH VIRULENT CULTURE TUBERCLE BACILLI

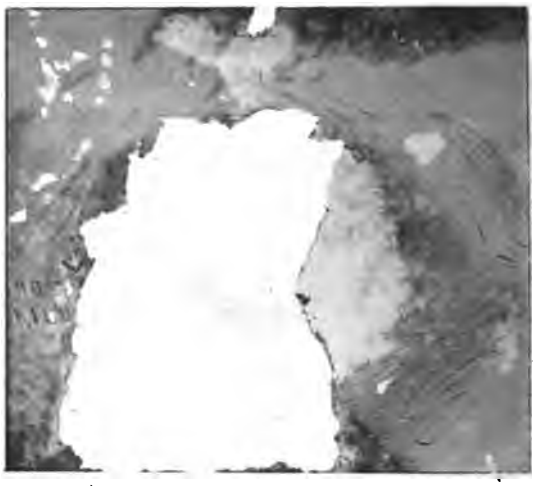
FEBRUARY 2, 1892



ANIMAL A

Control, 6 weeks after Inoculation.

Acute Inflammation of Structures of Eye. Cornea becoming cheesy.



ANIMAL A

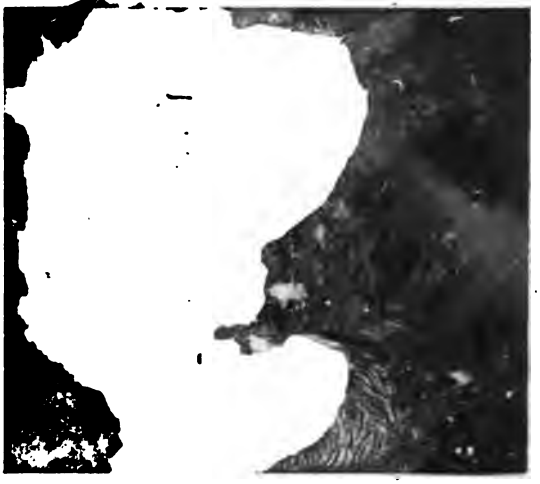
Control, 14 weeks after Inoculation.

Inflammation has subsided. Eye destroyed. All the tissues is cheesy.

ANIMAL B

8 weeks inoculated. Treated 6 weeks with Alcoholic Solution Bacterio-Protein.

Cornea opaque and becoming cheesy.



ANIMAL B

14 weeks inoculated. Treated 12 weeks with Alcoholic Solution Bacterio-Protein.

Disease [illegible] little. No reparative changes

ANIMAL C

8 weeks Inoculated. Treated 6 weeks with Filtrate of Liquid Cultures.

Irritation caused by treatment has resulted in Shrinking of Eye-ball, Disappearance of Tubercle and Caseous Areas. Cornea still opaque. Eyelids swollen and everted.

ANIMAL C

14 weeks Inoculated. Treated 12 weeks with Filtrate of Liquid Cultures.

All inflammation has subsided. Anterior Chamber obliterated, iris adherent to clear Cornea. No Tubercle or cheesy matter remain.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, SEPTEMBER 3, 1892. No. 10.

[illegible]

[illegible] immunity against tuberculosis had already been [illegible] by experiments [illegible] the possibility of curing the existing disease [illegible] injections of products derived from tubercle bacilli [illegible] with [illegible] Koch [illegible] and the [illegible] method followed [illegible] and resulted in [illegible] disappointment is still fresh [illegible] the professional mind.

[illegible] gave rise to [illegible] tirely [illegible] various [illegible] tive influence said to be exercised by these [illegible] upon experimental [illegible] In the general [illegible] treatment's efficacy in the human subject, [illegible] upon [illegible] culosis also [illegible] but little attention, and [illegible] more [illegible] the most [illegible] evidence [illegible] this [illegible]

It is quite evident, however, that if products derived [illegible] tubercle-bacillus have no beneficial influence upon the artificially-produced disease in animals, there [illegible] little reason for undertaking laboratory experiments of this character [illegible] the human subject, and research must take a new direction; while, on the other hand, if these bacterial products can be [illegible] to control to a very appreciable extent, the development of experimental tuberculosis, a reasonable hope may be entertained that by perfected [illegible] more extended and extended knowledge [illegible] may [illegible] standard produce [illegible] the recovery of the diseased [illegible] subject [illegible] be brought under control.

Moreover, the [illegible] and the [illegible] of Klebs would also indicate [illegible] possibility of obtaining a product, free from [illegible] of tuberculin yet capable, if not of curing disease, at least of exercising a marked beneficial influence upon its course, and some evidence as to the remedial efficacy as well as the dangers of these various products, as noted in animals, would tend to place our knowledge on a firmer basis, strengthen our convictions and guide us to a more intelligent application of these substances to the treatment of tuberculosis in man.

The present research has been undertaken, therefore, with a view to obtaining some more definite evidence—first, as to the curative effect said to be exercised by Koch's tuberculin upon inoculated guinea-pigs; second, as to the curative value and dangers in experimental tuberculosis of the modifications of tuberculin proposed by Hunter.

Furthermore, leaving to the distinguished chemists who have undertaken it the study and separation of the various elements, remedial and injurious, contained in Koch's tuberculin, I have attempted, by an application of the eliminative process, to demonstrate, by a few simple experiments, in which part of liquid cultures of the tubercle-bacillus the remedial element resides—whether in the bacterio-protein of which the bacilli are composed, or in the albumoses and soluble toxines produced in artificial culture-media as the result of their life-history.

Treatment with Koch's Tuberculin.

The description of experiments will be made as brief as is compatible with accuracy. Twelve guinea-pigs are inoculated under the skin of the abdomen with a pure culture of tubercle-bacilli grown on glycerin-serum. Four are kept as controls, and the rest are treated within two weeks of the virulent inoculation by injections of Koch's crude tuberculin, beginning with one milligram daily, and steadily increasing to one cubic centimeter, the intervals being lengthened as the doses become larger. Great care is found necessary in order not to kill the animals during treatment by an overdose of the remedy, two of them dying within six hours of taking the same dose that they had previously borne without accident; all the animals died tuberculous, the controls with an average life of eighty-eight days, the rest of the animals with an average of one hundred and twelve days.

So far as prolongation of life is concerned, these results would, indeed, seem meager, and differ but little from those obtained by other experimenters. Dujardin-Beaumetz,[1] Gibier,[2] Jaccoud,[3] Metschni-

[1] Read before the Association of American Physicians at Washington, May 2, 1892.

losis. In these products has the curative element been retained? Have the substances that produce fever and uncontrollable inflammatory reactions, or hasten a rapid generalization of the disease been eliminated? Which of the two modifications is the more efficient and safe? To these questions a partial answer has been sought by the experimental method.

Experiments.

By following Hunter's clear and concise directions no difficulty was experienced in the manufacture of the two modifications he proposes, which were obtained at first from Koch's tuberculin, and later from tuberculin made in my own laboratory. Since dialysis is depended upon in these modifications to eliminate most of the fever-producing elements, special attention was given to that part of the process. The thinnest membranes possible were selected, and the full time recommended was allowed. Nevertheless, the substances obtained, especially "B," although producing much less fever than the equivalent of tuberculin, were found to invariably cause a very appreciable rise of temperature in tuberculous animals; but no deaths occurred as the direct result of the treatment.

The details of the experiments were the same as those already described, in which Koch's tuberculin was used. The results show an average life of ninety-two days for the controls, one animal still living seven months after inoculation; an average of eighty-nine days for the animals treated with C B; and of one hundred and twenty days for the animals treated with B, of which two are still living, seven months after the virulent inoculation. The living control, however, is tuberculous; the inoculation-wound is healed, but several large cheesy glands can be felt in the groin; he illustrates admirably the extreme limit to which the element of natural individual resistance may prolong life in inoculation-tuberculosis, and the fallacy of drawing hasty conclusions as to the influence of any treatment, if based on observations made upon the prolongation of life in single animals.

Two of the animals treated with C B died unusually early, namely, sixty-three and seventy-eight days respectively after inoculation. The autopsies showed a marked tendency to early generalization of the disease; emaciation was extreme; there were no very advanced or extensive caseous processes anywhere, but an enormous amount of young tubercle was equally distributed in all the organs.

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The two guinea-pigs that are still alive (nearly seven months after the virulent inoculation) show healed inoculation-wounds, no enlarged glands, and their weight is a trifle more than at the beginning of the experiment. The dose of modification B has risen to seven cubic centimeters at an injection; the immediate result of which is to throw the animals instantly into tetanic spasms, from which, however, they recover within an hour. They no longer show any marked rise of temperature following the injections.

From the evidence obtained by this experiment, the following conclusions seem justified: 1. In Hunter's modifications the curative principle of tuberculin has been retained. This is especially true of modification B. 2. The fever-producing elements have been, to a certain extent, eliminated, but C B may favor rather than hinder the tendency to generalization. 3. Modification B is as efficient and is safer than either C B or crude tuberculin. Thus far my clinical experience with modification B has confirmed this conclusion.

Treatment by Filtered Culture-Medium and Bacterio-protein.

Tuberculin is a most complex mixture of many hitherto-unknown organic compounds, and all attempts at solving the mystery of its chemical composition have been, as yet, only partially successful. Koch first speaks of his specific as being a 50 per cent. glycerin extract of the tubercle-bacillus; while, in a later communication, he describes it as being obtained by evaporation of liquid cultures. Whether, however, the virtues of this evaporated material are due to the extraction of the bacilli by heat, or reside in the soluble products with which they have impregnated the animal-broth during their growth, does not appear.

What is evident is that the whole is heated together, evaporated by heat, and the dead bacilli removed by filtration; the result being the complex mixture known as tuberculin.

To the bacteriologist liquid cultures resolve themselves at once into two very distinct and easily separable parts: namely, the tubercle-bacilli, which float on the surface, and the beef-broth in which they have grown. The tubercle-bacilli are principally composed of bacterio-protein, which is but very sparingly soluble in any reagent, while the liquid of ripe cultures holds in perfect solution the albuminous compounds and toxines that have been formed in it as the result of the growth and development of the microbes.

It has occurred to me that the eliminative method might here be applied with advantage, and that the future work of the chemist would be greatly simplified if it could be proved whether the remedial

koff and Roux,[4] Bardach,[5] and Pfuhl[6] attempted to cure inoculated guinea-pigs, although Pfuhl noted a marked prolongation of life in his experiments.

The influence of the treatment is nevertheless strikingly illustrated by the autopsy. If a healthy guinea-pig be inoculated under the skin of the abdomen, the tissues and organs almost invariably become involved in the following order: the disease spreads with great regularity from the inoculation-point to the inguinal glands; thence to the retro-peritoneal glands, the spleen, the liver, and the lungs. Thus, in the dead controls the pathologic processes are seen to be more advanced the nearer they occur to the inoculation-wound, while in the treated animals the reverse usually is true.

The controls showed at autopsy heavy inoculation-wounds, often still open, cheesy inguinal and retro-peritoneal glands, enormous spleen riddled with tubercles and cheesy areas, enlarged tuberculous liver, and a moderate number of yellow tubercles scattered through the lungs. In the treated animals, if treated for more than two months, on the other hand, the inoculation-spot is healed and covered with hair; the inguinal glands are free or only slightly enlarged, and rarely cheesy; the spleen is either moderately tuberculous, or it may even be of normal size and appearance; the liver likewise; while the lungs are solid with cheesy tubercles.

It is probable, therefore, that the curative influence of tuberculin is exercised only after tubercle-tissue has once formed. The reparative processes that it incites seem to follow in the track of the disease, but are powerless to arrest extension to neighboring structures. Habituation to the injection soon takes place. The dose grows rapidly, as the disease, overcome at one point, spreads to another; and by the time the lungs are attacked, anything short of a poisonous amount will no longer bring about the local reaction necessary to cure.

The pulmonary disease, therefore, progresses unchecked, and soon results in the animal's death. A fact observed in the experiments further on recorded strongly confirms this view. If tubercle-bacilli are injected into the anterior chamber of a rabbit's eye, and the treatment by injections of a product of the tubercle-bacillus be begun at once, the appearance of tubercles on the iris and cornea cannot be averted, and will be rather hastened than delayed, even though the efforts of the experimenter to effect a cure be ultimately crowned with success.

That tuberculin cannot confer immunity to subsequent infection has been shown by others and by myself in a research published at the time of Koch's announcement of the specific action of tuberculin. It would seem, therefore, that injections of tuberculin exercise a marked remedial influence on the tuberculous lesions of the guinea-pig [illegible] the primary ones, but contribute [illegible] beneficent agency against the [illegible] further growth of the germs, for the [illegible] on these [illegible] spread from [illegible] are thereupon [illegible] are the original [illegible] be effected [illegible]

In this view [illegible] the disease becomes [illegible] guinea-pigs [illegible] take their [illegible] trying [illegible] efficacy of [illegible] is to be [illegible] Koch will [illegible] exact [illegible] methods [illegible] in [illegible] to the [illegible] published [illegible]

Experiments with [illegible]

Whether the injurious elements of tuberculin can be eliminated or not, without impairing its curative virtues, is a question of success of which experiments upon which the highest authorities [illegible] measure the efficacy [illegible] production [illegible] certain diseases [illegible] tuberculous [illegible] from the fact [illegible] consisted [illegible] the [illegible] instances are [illegible] from [illegible] fever and local reaction.

In his latest researches [illegible] was assisted by Dr. Singer, [illegible] science on [illegible] tuberculin. Koch, on the other hand, [illegible] obtained from [illegible] in a material entirely free from [illegible] producing [illegible] general effects caused by [illegible] the other [illegible] Koch's is the first [illegible] of separating the desired [illegible] however, he has [illegible] considerable [illegible] be subjected by [illegible] to [illegible] of [illegible] at which he has arrived [illegible] form of tuberculin [illegible] cise as to invite other [illegible] clusions and attempt to [illegible] light on the points he has so [illegible]

Guided by the effects observed in lupus, Hunter sought, while reducing the curative substance, to eliminate from Koch's tuberculin those elements that produce violent reaction and fever, which he considers principally responsible for most of the accidents caused by this mode of treatment. As a result of his research, he proposes two modifications, which he designates merely as B and C B, both of which bring about in lupus certain reparative changes tending to cure but unaccompanied by fever, and each varying greatly in the degree and intensity of the local reaction it produces.

Some light to guide us in the application of these important deductions to the treatment of human beings has been sought by a short study of the effect of Hunter's modifications on experimental tubercu-

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It has occurred to me that the eliminative method might here be applied with advantage, and that the future work of the chemist would be greatly simplified if it could be proved whether the remedial

principle is to be sought in the bacilli themselves or in the culture-medium in which they have grown. With this end in view the following experiments were carried out:

Liquid cultures of the tubercle-bacillus are filtered through hardened filter-paper. To this filtrate one per cent. of carbolic acid is added to preserve it, and it is now ready for use. This fluid contains all of the soluble albumoses and toxines, but no bacterio-protein, and nothing that may have been extracted from the bacilli by heat, as in the manipulation for producing Koch's tuberculin. It contains a hitherto-undescribed substance which is at once precipitated by a temperature of 100° C., and which is probably of the nature of a true toxalbumin, as it is thrown down by heat and causes fever in tuberculous animals. This substance is not a component part of tuberculin, as, in the manufacture of Koch's lymph, it must at once be precipitated by heat during the evaporation on the water-bath, and filtered off with the bacilli. Want of space forbids anything beyond a mere reference to this as-yet-unstudied element of filtered cultures.

An extraction of the bacterio-protein may be effected according to the first plan about to be described; a partial solution according to the second.

The mass of bacilli is first thoroughly washed, while still on the filter-paper, with tepid water. This is a tedious process, and should be carried on until the wash-water no longer shows any cloudiness when added to a solution of silver nitrate (the cloudiness being due to precipitation of silver chloride, caused by the presence of the sodium chloride contained in the culture-medium).

The bacilli may then be transferred to a flask containing a 50 per cent. glycerin-and-water mixture equal in volume to the original liquid culture made use of. The flask is put into the sterilizer for two hours, and after having been thus extracted the bacilli are removed by filtration through filter-paper. This filtrate is a true glycerin extract of the tubercle-bacillus, though, neither in its outward appearance nor in the effect produced by it in tuberculous animals has it apparently much in common with Koch's tuberculin.

A partial solution of the bacilli may be effected by transferring the well-washed culture-mass to an excess of boiling absolute alcohol for ten minutes, filtering while the alcohol is hot, adding an amount of pure glycerin equal to a quarter of the original volume of liquid culture used, and entirely evaporating the alcohol in the dry oven at a temperature of 55° C. This glycerin solution contains a large amount of bacterio-protein, but is so viscid that it cannot well be injected without first being heated, and even then a large needle is necessary.

With these two solutions several sets of tuberculous guinea-pigs were treated; the general observations made being that bacterio-protein solutions cause a slow form of suppuration at the site of injection; no marked fever even in very large doses (from two to three cubic centimeters); an over-dose never resulting in death, even when the animals are profoundly tuberculous. They produce no inflammatory reaction in and around tuberculous areas, and they have, apparently, no marked remedial value. They cause emaciation and general cachexia in the animals treated. From the autopsies, the 50 per cent. glycerin solution appears to hinder the natural chimiotactic reaction at the inoculation-spot or in the injected organ, and thus to favor a general spread of the disease.

Injections of the soluble products contained in the culture-medium in which bacilli have developed produce no local suppuration, but all of the characteristic reactions of tuberculin: distinct local and general reaction of a transitory nature, death invariably following an over-dose; marked improvement in the primary lesions, followed occasionally by general improvement and prolongation of life, and finally death by the spread of the disease to some distant organ, generally the lungs. By injections of this material chimiotaxis around diseased areas is greatly stimulated, a rush of leukocytes to the affected part invariably resulting from the treatment.

To obtain more conclusive evidence, recourse was had to another method of experimentation. Rabbits were inoculated in the anterior chamber of the eye according to the plan first proposed by Cohnheim and Salamonsen, and adopted by Baumgarten,[10] for the study of tuberculosis. In each experiment one group was kept as controls, while the remaining animals were divided into equal groups and treated with each of the solutions. Thus, the progress of the disease in the controls, as compared with its evolution in the eyes of the treated animals, could conveniently be watched and compared. This plan proved most satisfactory, and the evidence it brought forth is full of interest.

The Effect of Bacterio-protein Solution.

Injections of the second solution of bacterio-protein were begun from five to twenty days after virulent inoculation. They were followed by but slight, if any, fever, and caused no immediate and transitory irritation of the affected eye, which, nevertheless, steadily grew worse. They proved highly chimiotactic locally, producing suppuration at the site of puncture, and their prolonged use was followed by profound constitutional deterioration. The animals became anemic, emaciated steadily, and, if the treatment was pushed for a long time, often died of general cachexia.

On autopsy the kidneys occasionally presented the

appearance of chronic parenchymatous nephritis, and glandular abscesses and chronic pleurisy were noted. These observations confirm those of Straus and Gammaleia[11] and Muffici,[12] who found chronic poisoning to result from injections of dead bacilli. The beneficial effect on the eye-lesions was doubtful, and consisted in some cases of an apparent retardation during the second month of treatment of the destructive processes connected with caseation. The eyes were, however, never restored.

Effects of Soluble Products Contained in Filtered Culture-medium.

Injections of the filtered culture-medium in which tubercle-bacilli had been grown produced no local suppuration, only a transitory loss of weight occurring after each injection, and no serious deterioration in the animal's general health resulted. They were followed by distinct rise of temperature, varying according to the dose injected and the amount of disease present, occurring within four hours and lasting from twelve to eighteen hours afterwards, accompanied with marked but temporary irritation of the inoculated eye. Intense redness, iritis, purulent conjunctivitis developed at once, and later increased tension, cloudiness of the cornea, pannus, etc., slowly supervened, the vascular phenomena distinctly remitting during the intervals between the injections, which soon lost their irritating effect on the eye, unless the dose was steadily increased.

During the first six weeks, the treatment appears to have only sensibly hastened the progress of the disease, but about the seventh week, if the injections were begun within a few days after inoculation, an improvement in the eye-lesions first shows itself. The inoculation-wound in the cornea bulges less, and is less cheesy in appearance; the cornea is less cloudy, while no new tuberculous areas are seen to have formed on the iris. If the injections are commenced when the eye is already extensively involved, shrinking of the eye-ball and diminution of the diseased areas in the cornea are observed at this time, when destructive processes are rapidly progressing in the eyes of the untreated animal.

From this time, as the irritation caused by each injection disappears, marked improvement is apparent. The caseous areas slowly melt away, the dilated bloodvessels shrink and disappear, intra-ocular pressure diminishes, the cornea clears, and from twelve to eighteen weeks from the beginning of treatment the eye is to all appearances *cured*, in the sense that it has been restored as nearly to its normal condition as is consistent with the lesions existing when treatment was begun. The eye-ball may be but a shrunken fibrous mass, or the anterior chamber alone may be obliterated, the iris normal in appearance, adhering to the now transparent cornea, or the eye may be so little damaged that its function as a visual organ is almost completely restored. As to the permanency of this apparent cure time alone can decide. I have as yet no evidence to offer on this point, and it is not impossible that relapses may occur. The complete restoration (even if it should prove occasionally to be but temporary) of such delicate tissues, as the result of any general specific treatment, is a fact of the utmost significance and of the highest importance.

These results correspond in most particulars with those recently published by Professor Dönitz[13] and Sattler[14] in the treatment of eye-tuberculosis with Koch's tuberculin, theirs being the only observations as yet recorded in which any success has been attained in experimental tuberculosis by a specific method.

In the few autopsies made on animals whose eyes had been cured, no tuberculous disease was found in the other organs.

It should be borne in mind, however, that the anatomic conditions found in the eye are not at all favorable to a great spread of the local disease or to its rapid generalization. A study of the changes taking place during the restoration of the eye points distinctly to local reaction as an inseparable element of cure. If the dose be not increased, and, in consequence, the usual transient irritation be not produced, improvement ceases, and in time the tuberculous disease again progresses.

Attempts at eliminating from tuberculin those substances that produce local reaction would seem, therefore, to be of doubtful utility.

It is, thus, not to the bodies of the bacilli, but to the liquid that they have impregnated with the products of their life-history that we must look for the remedial element contained in ripe cultures. What is extracted from the bacilli themselves by heat in glycerinated media (as in the method hitherto adopted to produce tuberculin) cannot cure, and it is not impossible that it may hasten the spread of the disease by paralyzing the normal chimiotactic reaction of the system; besides, this substance is harmful to the health of living animals. For these reasons it should be eliminated. On the other hand, the soluble products contained in the animal broth in which bacilli have developed, but from which they have been removed by filtration without heat, can cure localized tuberculosis in the rabbit's eye, and it is to this element of liquid cultures that we must turn in future attempts to separate a substance free from the dangers of tuberculin, and yet capable of exercising, it may be, to a greater or less degree, a curative influence over visceral tuberculosis.

The conclusions to be drawn from this study may be briefly stated as follows:

1. Koch's tuberculin does not cure experimental tuberculosis in the guinea-pig, although its specific influence on the primary lesions is indisputable.

2. Hunter's modification, C B, contains less of the remedial principle than tuberculin, and is apparently quite as dangerous.

3. Hunter's modification, B, is as efficacious as tuberculin, and free from some of its dangers.

4. Solutions obtained as described from well-washed tubercle-bacilli have, when extracted with 50 per cent. glycerin and water, an injurious effect; when treated with hot alcohol, a doubtful and, at best, feeble remedial influence over experimental tuberculosis.

5. They produce suppuration and serious constitutional impairment, which may result in organic disease and death.

6. The liquid culture-medium in which tubercle-bacilli have developed, but from which they have been removed by filtration, contains the elements that bring about reaction and cure in tuberculous tissue.

7. Experimental tuberculosis in the rabbit's eye can be cured by injections of the filtered culture-medium.

8. The permanency of such a cure has not yet been established.[1]

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THE ECZEMAS OF INFANCY AND CHILDHOOD, WITH SPECIAL REFERENCE TO ETIOLOGIC AND DIETETIC CONSIDERATIONS.[2]

BY CHARLES P. RUSSELL, M.D.,
OF UTICA, N. Y.

THE types of eczema to which I invite your attention in this paper are the pustular, vesicular, erythemato-squamous, and seborrheal, the principal varieties ecountered in infancy and childhood.

That these varieties of eczema in the young are very frequently the local expression of hereditary taint, with consequent depraved cell-action and poor nutrition will, I think, be readily acknowleged by all who have much to do with skin-diseases, and a firm belief in the importance of considering these troublesome affections of the young from the standpoint of etiology, as bearing upon successful management, must be my excuse for bringing this subject before you.

Whatever affects the general nutrition of the body must necessarily influence the well-being of the skin, for that structure, as much as any other, depends upon normal blood and perfect cell-metabolism for its health and physiologic activity.

Broadly speaking, it may be said that there are two classes of influences at the bottom of imperfect skin-nutrition and predisposing to catarrhal inflammations: hereditary taint, as affecting normal cellular activity, and acquired poverty of the blood and tissues, the result largely of disorder of the digestive apparatus.

I will not consume valuable time by a consideration of the digestive processes in infancy and childhood, as you are all doubtless familiar with them. It is enough for our present purpose to show that the anemia and tissue-debility resulting from improper feeding in the young is a powerful factor in the causation and persistence of their eczemas.

If we glance at the differences in structure between the cutaneous envelop of the infant and that of the adult we will see reason why that of the young and growing child is more disposed to take on inflammatory action. In infancy the circulatory and nervous systems of the skin are developing and expanding with great activity, the tissues are young and succulent, the capillary circulation is very active, the lymph-channels and lymph-glands are relatively large, and the sensory nerves are extremely impressionable and easily irritated.

A distinguished British writer, Stephenson, aptly says: "It is dependence upon development which distinguishes the eczema of the child from that of the adult. Under its influence we see its character modified according to the age of the child; we find it obstinate under treatment at the earlier stage and amenable to it or undergoing a spontaneous cure as the period peculiar to it draws to a close." This author places the limit of the period of extreme liability to catarrhs of the skin at six years. From my own experience I can indorse Stephenson's dictum, and say that eczema of any variety, but more particularly the pustular and vesico-pustular, is more severe, more rebellious to treatment, the more nearly its time of development approaches to birth. This

[1] The paper was followed by a demonstration of the curative influence of the treatment by means of photographs and living animals.

[2] Read before the Section of Dermatology and Syphilology of the American Medical Association, at Detroit, June, 1892.

is especially true, I think, of eczema impetiginodes, whether depending upon a scrofulous taint or upon simple debility.

Eczema pustulosum is preëminently the type of scrofulous eczema, although at times it is encountered in children who are simply anemic or poorly nourished. When the scrofulous taint is the marked predisposing factor the disease seems to develop at an earlier age than when it is the expression of anemia and malnutrition alone, and the more pronounced the element of struma in any case the more subacute the catarrh, the more sluggish the reparative processes, and consequently the more rebellious to treatment.

When we ask just how the strumous taint acts upon the nutrition of the skin we ask a question that pathologic histology has not yet enabled us to answer definitely.

From the pathologic studies of Neumann and others we know that in scrofula the lymph-channels are enlarged, dilated, and in places more or less obstructed by the excessive formation of the small, round lymph-cells or lymphoid corpuscles.

This process, being a general one, must take place, to a greater or less extent, in the lymph-spaces of the derma, which we know also from the investigations of Neumann, are relatively larger in the scrofulous than in the healthy skin.

If this be so, it seems reasonable to suppose that the resulting pressure upon the vascular structures and cells of the corium must interfere with and prevent normal nutrition. Be this as it may, clinical experience shows that there is a peculiar, depraved nutrition of the skin of the strumous child, which extends at all times an invitation to eczema. In many cases of pustular eczema we cannot find any external cause, or the external irritation is only very slight and transitory in action.

When external irritants coöperate with hereditary taint in producing an eczema, the part played by the irritant is oftentimes very slight and of secondary importance. A prominent external factor in some of these cases is the decomposition of the fatty acids of the sebaceous secretion, which is often abnormally abundant in debilitated infants. This excess of production is at times especially marked upon the scalp, neck, forehead and buttocks. Among other sources of external irritation, besides accumulation and decomposition of the natural secretions, from lack of cleanliness, may be mentioned too frequent bathing, immoderate friction, the use of coarse super-alkaline soaps, acid excretions left in contact with the skin, prolonged contact of catarrhal discharges from mucous surfaces, over-sweating and maceration of the epidermis from too much or too warm coverings, piercing the ears, and scratching to relieve punctures from various causes.

Treatment. The pustular or impetiginous eczema of the young depends so largely upon the influence of diathesis that to be efficient its treatment must consist primarily of measures calculated to increase nutrition. Purely local treatment is in many cases insufficient, and must necessarily be so when we consider the vicious constitution, the anemia and debility so often at the root of the disease.

Many obstinate cases of eczema pustulosum in nursing children are rendered more so by the child being half starved on account of the poor quality of the mother's milk. These cases begin to improve very rapidly after the substitution of a healthy wet-nurse, if that is practicable, or, if that cannot be afforded, good cow's milk, properly diluted according to the age of the infant. I think it best in most cases to give the milk in its natural undigested state if there be no catarrh or marked weakness of digestion. In warm weather, milk can be kept from decomposing by the usual process of sterilizing by heat and then preserving in tightly covered, absolutely clean jars in a refrigerator or other cool place. In the ordinary run of cases this seems to me much better than peptonizing it. The bitter taste of peptonized milk, when overheated, makes it very unpalatable, and we have all seen it a difficult matter to overcome the repugnance of some infants to it. If for any reason the infant cannot digest the milk after a fair trial, a resort may be had to the peptonized article, until the child's digestive processes have become stronger. Some illy nourished, puny little ones I have found will digest an artificial food like Nestlé's or Carnrick's better than milk in any form. Condensed milk I mention only to condemn as a food for an eczematous infant. It contains too large a proportion of saccharine matter, and too little of the true strength-giving elements. Whatever line of dietetics the little patient is put upon, the important thing is to select the most nourishing food that is at the same time the most digestible—the aliment that is most easily digested by the patient under treatment, for it is the patient you have to treat as well as the disease.

I have found emulsion of cod-oil particularly useful in eczemas associated with struma, especially one known as peptonized cod-liver oil and milk. In my hands the administration of this has been productive of much benefit, not only in the scrofulous child, but when malnutrition, pure and simple, seemed to play a part in maintaining the eczema. In the case of bottle-fed infants, the peptonized oil and milk may be added directly to the cow's milk, or be fed from the spoon in doses of a teaspoonful from four to six times a day. In nursing infants, when the natural food seems to be thin and lacking in fatty matter, the oil may be given through the medium of the mother. For this purpose I

think very well of the combination of cod-liver oil and malt, as uniting a nutrient with an agent promoting assimilation and lactation.

Infantile eczema, whether vesicular or pustular, when some degree of anemia exists, is often much benefited by the administration of some form of iron. The syrup of iron iodide is indicated and is a most useful hematinic in the anemia of scrofulous eczema. In the simpler forms of anemia resulting from poor food, bad air and want of sunshine, I have found ammonium and iron citrate and the lactate very assimilable and unirritating forms of iron. Lately I have used a syrup of ferric chloride in some cases of eczema with impoverished blood, and have found it exceedingly well tolerated by very young children and very prompt in its effects.

In all varieties of infantile eczema, constipation, if present, must be corrected. This should always be attended to at the outset, before the regular line of treatment is instituted. We often meet with obstinate constipation in eczematous infants at the breast, there seeming to be some constipating quality of the milk. In other cases the constipation is evidently due to a deficient secretion of bile, as shown by the sallow skin, furred tongue, and clay-colored stools. I have found granules of podophyllin, gr. $\frac{1}{40}$, useful in relieving constipation of this sort. In some few cases the podophyllin may irritate a little. If it does, it may be advantageously replaced by calomel in doses of from gr. ½ to gr. 1 three times a day, for a few days, until the liver has been well acted upon, and the tongue becomes clean; or the combination of rhubarb, mercury with chalk, and soda may be given. When constipation seems to be due to some alteration in the quality of the mother's milk the infant may be given from ten to twenty grains of sodium phosphate in a little warm, diluted milk, night and morning; or the extract of malt may be administered in doses of a teaspoonful, added to the milk. The non-bitter fluid extract of cascara, in combination with malt, I have found serviceable in treating the constipation of children with eczema. It is particularly useful as a tonic to the glandular structures after hepatic torpor and derangement has been corrected. It has also the advantage of containing a diastasic nutrient. Many children with eczema suffer more or less from a mild gastric catarrh. This favors the spread and increases the tenacity of eczema. We may combat this with small doses of calomel, say gr. ½, or of mercury with chalk, say gr. 1, three or four times daily for a few days, followed by bismuth or ammonium citrate.

Vesicular eczema. It is a peculiarity of vesicular eczema, as distinguished from the more pustular form in young children, that it tends to invade a much larger surface. We see it is not so much restricted to the face and scalp and contiguous regions. It is a common thing to see not only the head, but considerable portions of the trunk and upper and lower extremities invaded by it. It is commonly presented to us in the beginning of its second stage. We then have the common picture of an intensely reddened, swollen, itchy, exuding surface; the discharge drying into yellowish scales and crusts; or where exudation is not so abundant, the exposed red, raw, bleeding mucous layer. Typical vesicular eczema occurs in a class of children of better general health than obtains in the lymphatic or strumous form. It is not so essentially dyscrasic in nature, but it is oftener the expression of constitutional states and acquired blood-conditions. In most cases these acquired states coöperate with external irritation in evoking the eczemas of the vesicular and erythematous types. As the result of my own observations, I should say that external irritants play a much more important part as factors in the causation of vesicular eczema than they do in the pustular or impetiginous varieties.

Scrofulous eczema is more often the result of a congenital morbid impression on the skin, alone or in association with a mild irritation. The non-diathetic eczema is more often the result of acquired conditions coöperating with external irritation of a more pronounced character. We must also take into account the fact that the non-strumous integument is thinner, has a more active capillary circulation, and is thereby rendered more responsive to both external and internal forms of irritation. All conditions producing reflex irritation of the skin, such as delayed and difficult dentition, repeated attacks of acute indigestion, gastro-enteric catarrhs, intestinal parasites, are prominent among the internal causes of vesicular eczema in infancy and childhood.

The bronchial asthmas of rickety children. There is a peculiar alternation sometimes seen between bronchial asthma and eczema in rachitic children, the one acting substitutively for the other.

In children, from two to six years of age, we occasionally meet with eczemas tending toward an erythemato-squamous type, attacking the back, the gluteal region, and lower limbs. In many of these cases I have found the urine habitually hyperacid from excess of urates, depending upon a suboxidation of imperfectly digested food, usually containing an excess of the nitrogenous elements. The little subjects are often plump, and apparently well-nourished, but all are pale, with dry and harsh skin, furred tongue, and irregular action of the bowels. This erythematous eczema, which early passes into the squamous stage, is likely to be associated with an overacid condition of the system. Very often we find that these little subjects have been allowed tea and coffee, and that fried dishes, meats, pastry, and other unsuitable articles have

entered largely into the dietary. The first and most important thing to do in assuming charge of such a case is to eliminate at once from the diet-list all nerve-stimulating beverages and rich, indigestible food. The food taken should be mild and unstimulating. There should be a judicious admixture of nitrogenous and carbohydrate aliments, not reaching excess in either direction. Powdered beef-peptonoids is a good dietetic preparation; I have found it of much service when digestion was weak, it being nourishing and at the same time not overstimulating. Some chronic weeping and scaling eczemas in children, associated with a scanty, heavy urine, are much benefited by the administration of alkalies. I prefer the vegetable acid salts of potassium for children, as they are better borne by the stomach and diffuse more quickly into the blood. Potassium acetate is most useful in this connection, given in from five- to ten-grain doses, well diluted, after meals. It can be given with a tonic, such as nux vomica or cinchona, if there is much general debility. The liquor potassii citratis may also be given with good effect in these cases.

Whatever diversity of opinion there may have been with regard to the efficacy of arsenic in the scaling eczemas of adult life, there is, I think, practical unanimity in favor of its use in the squamous stage of the disease in the child. Personally, I may say that I have seen prompt improvement follow the exhibition of arsenic in infantile scaly eczema. It seems to be more especially useful in thin, nervous subjects. Young subjects will bear relatively larger doses of arsenic than adults, there seeming to be a parallelism between their tolerance of this drug and that so often manifested for mercurials. In the papular eczemas arsenic is generally useful. Typical papular eczema is not very frequently encountered in children under six. It is sometimes advantageous to combine small doses of arsenic with potassium acetate or citrate. The indications for this union of two valuable therapeutic agents are the usual urinary indications for an alkali and a sluggish subacute state of the eruption, a prolonged halting in the stage of repair.

The several forms of eczema in the first years of life may be found in children who seem to be perfectly healthy, presenting no evidences of inherited or acquired disease, and no marked symptoms of functional derangement. In this class the determination of catarrhal disturbances of the skin may be wholly due to external irritation. In others the train is fired by some temporary nerve-irritation acting reflexly upon the skin, such as teething, the sudden change from a milk-diet to a diet of farinaceous and animal food. Furthermore, in searching for the cause we can in a considerable number of cases only content ourselves by saying that the child has an inherited predisposition to eczema, making it easy for any external irritation to evoke the disease.

Eczema seborrhoicum is occasionally met with during infancy and early childhood. If we are willing to extend the use of the term to simple collections of fatty scales upon the scalp, making that the first stage, as Unna does, then it is a relatively common disease in children. In its more pronounced form I do not believe that it is very frequently met with in the very young subjects whose eczemas are the subject of this paper. In my experience it does not seem to be generally associated with a depraved constitution or impaired general health. Certainly, most of the cases that I have seen have been in healthy children, although I have seen a few associated with a scrofulous taint. Whether that had any predisposing influence or not, I am not prepared to say.

Eczema seborrhoicum in its second stage, presenting oval and round dull-red, slightly elevated macules, covered with crumbly, greasy scales and crusts, the individual spots enlarging and coalescing, is sometimes seen upon the faces of very young children. In them it does not, however, show the same disposition to extend rapidly downward that it does in adolescents and adults. The more nearly we approach infancy the more often do we meet with it in the first stage, or as a so-called seborrhea sicca capitis. With each added year of life the disposition to assume the crusted and moist form is intensified. Most of the cases do not seem to require any internal treatment, the subjects being usually in good or at least fair health. If in any case we discover functional derangements of the stomach, bowels, kidneys, or liver, these deviations should, as far as possible, be corrected at once, just as in the treatment of any other variety of eczema. If we find the disease associated with inherited struma, syphilis, or any other constitutional taint, the alterative and tonic treatment applicable to these dyscrasiæ is certainly indicated, in addition to efficient local applications. In the internal treatment of seborrhoic eczema there is one remedy that I have used in a few cases and, I think, with some benefit, and that is ichthyol. In those few cases it has been well borne, and has seemed to shorten the duration of the disease. I have given it in doses of from one-half to three grains, in pill, according to age.

From what has been said in this paper concerning the nature and etiology of eczema in infancy and childhood, the following conclusions may be drawn:

1. A large proportion of infantile eczemas have for their basis an inherited constitutional taint or dyscrasia.

2. In a certain proportion, and a fairly large one, anemia and malnutrition act as predisposing causes,

impressing upon the disease a tendency to chronicity and rendering it less responsive to local treatment.

3. Eczemas originating during the first year of life are usually more obstinate than those arising later, and in them constitutional treatment is very important.

4. The eczemas occurring during the early years of childhood, between two and six years of age, generally takes on the more typical vesicular type. They are rather vesicular or erythematous than pustular, and external irritation plays a relatively more important rôle in their production.

5. The internal predisposing cause in these eczemas is oftener some acquired condition than an hereditary one.

6. Dietetic, in addition to alterative, treatment is most important in the strumous eczemas of infancy. Cod-liver oil, malt, and iron iodide are the best constitutional remedies, either alone or in combination to suit individual conditions.

7. In the internal treatment of the vesicular and erythematous eczemas of early childhood, remedies addressed to the correction of acquired states and functional derangements of the chylopoietic system are more often indicated. Malnutrition and anemia must first be removed by simple, easily-digested food. Dyspepsia, gastric irritation, intestinal catarrh, hepatic torpor, and deficient kidney-action must all be treated and removed by appropriate remedies, before any striking effects can be obtained from local applications.

THE EFFECTS OF HEAT AS MANIFESTED IN WORKMEN IN SUGAR-REFINERIES.

BY W. M. L. COPLIN, M.D.,

ADJUNCT PROFESSOR OF HYGIENE, DEMONSTRATOR OF PATHOLOGY, CURATOR OF THE MUSEUM, JEFFERSON MEDICAL COLLEGE; ADJUNCT PROFESSOR OF PATHOLOGY, PHILADELPHIA POLYCLINIC; A. A. SURGEON, M.-H. S.; PATHOLOGIST TO ST. AGNES' HOSPITAL;

D. BEVAN, M.D.,

INSTRUCTOR IN HYGIENE AND INSTRUCTOR IN CLINICAL MICROSCOPY, JEFFERSON MEDICAL COLLEGE; BACTERIOLOGIST TO ST. AGNES' HOSPITAL;

AND

H. SOMMER, JR.

ON Monday, July 25, 1892, the temperature of the city of Philadelphia had been gradually creeping up until it reached blood-heat. Mr. W. W. Harrison, representing the Franklin Sugar Refining Company, sent a note to Dr. Coplin stating that, by reason of the extreme heat outside and of the still higher temperature in many parts of the refinery, the men were beginning to show evidences of suffering, and requesting that arrangements be made for giving all who might present themselves professional attendance in the refinery.

An accident-room had been fitted up upon the ground floor of one of the coolest buildings. The room is fifteen feet square, has two windows opening into the street and a door opening into the refinery. The floor is of concrete, and the walls and ceiling are plastered and painted. There is no ingress of air from the refinery proper except through the door when open. In anticipation of being utilized for the treatment of accident-cases, this room had been fitted up with a medicine case, a desk, a table, an ice chest, a large, flat bath-tub, hot and cold water, a bed, and two large stretchers. Illumination is furnished by four incandescent burners, one of which is portable and can be carried conveniently to any part of the room. There is a full complement of medicines that may be needed for emergencies, thermometers, bandages, antiseptic dressings, splints, record-sheets, and books for making the necessary notes of an emergency hospital. The temperature of this room on the hottest days ranges from 95° F. to 100° F. By reason of the extreme heat, a blast, six inches in diameter, was arranged along the ceiling of the room, with angular tubes, projecting downward and so placed that they can be turned in any direction; by means of slides placed in the opening the blast can be fully regulated or shut off from any one or more of the tubes. This blast is connected with a ventilating fan driven by an electric motor, securing between 1500 and 2000 revolutions per minute and delivering air, brought from the street, through a large funnel containing filtering sieves, into the room with a current sufficiently strong to lift the hat from one's head if standing at a suitable angle. A thermometer in an air-tight box would register 95° F.; if kept in the current of air the registration would be from two to five degrees lower, and the constant change of air rendered the room pleasantly cool.

The temperature of the water from the ordinary supply was about 80° F., so that water from an artesian well, with a temperature of 45° F., was piped in at such pressure as to furnish a fine spray of enormous force.

The temperature throughout the different parts of the refinery varied from 95° F. to 165° F. Some of the men worked constantly in temperatures of from 115° F. to 118° F., and although the building is abundantly supplied with ventilating fans, run by both steam and electric motors, there prevailed a stillness that was absolutely oppressive. The men are for the most part foreigners and accustomed to the work, which, although in a sense laborious, is so arranged as to require no continuous labor in very hot places for any one individual. The foremen of the different departments are intelligent and well trained, and to these were issued instructions that should anyone complain of any symptoms whatever, or show any evidence of illness, he should be brought to the accident-office for examination.

Arrangements were perfected by which Mr. Henry Sommer, Jr., should be constantly on duty and Dr. Coplin and Dr. Bevan on duty during certain hours.

The number of men on duty in the various departments numbered 800 in the day and 500 in the night. The shifts of men changed at 6 o'clock in the evening and at 6 o'clock in the morning. The number of cases treated, with the temperature out of doors, and the results of treatment were as follows:

	Highest Temp. out of doors.	Number treated.		Returned to work.	Sent home.	Sent to hospital.	Fatal.	Total.
		A. M.	P. M.					
Monday, July 25	93°	...	13	9	3	1	1	13
Tuesday, " 26	101	32	37	58	11	...	...	69
Wednesday," 27	95	23	14	33	4	...	...	37
Thursday, " 28	96	15	24	32	7	...	...	39
Friday, " 29	98	21	17	35	2	1	...	38
Saturday, " 30	87	5	9	13	1	...	...	14
Sunday, " 31	80	1	1	2	...	...	...	2
Monday, Aug. 1	...	1	...	1	...	...	...	1
		98	115	183	28	2	1	213

Of this number, it will be observed, 183 returned to work; 28 were sent home; 2 were sent to the hospital, and 1 of these died. The temperature of the men ranged as follows: In 2 the temperature was over 108° F.; 1 of these died (temperature 110° F.), 1 recovered (temperature 108.8° F., rectal). In 28 the temperature ranged between 105° F. and 108° F.; in 7 of these it was above 107° F.; in 11 above 106° F.; in 10 between 105° F. and 106° F. In 50 the temperature ranged between 102° F. and 105° F.; in 17 of these it was above 104° F.; in 13 above 103° F. and below 104° F.; and in 20 between 102° F. and 103° F. Of the remaining 133 the temperature in 62 was above 101° F.; in 49 it was between 100° F. and 101° F.; in 8 between 99° F. and 100° F.; in 6 between 98° F. and 99° F.; in 5 between 97° F. and 98° F.; in 1, 96° F.; in 2 between 95° F. and 96° F.

As to the hours at which the men became sick: 102 cases occurred in the twelve hours following midnight, 111 in the twelve hours following midday. Of the four quarters of the day, 57 cases developed between midnight and 6 A.M., 45 between 6 A.M. and noon, 66 between noon and 6 P.M., and 45 between 6 P.M. and midnight. The larger number of attacks occurred at or about the changes of shifts, namely, between 3 o'clock and 5 o'clock, A.M. and P.M. This would be expected, as at those times the men had been exposed to the heat for several hours and the lunch at 12 o'clock had had time to lose its invigorating effect.

The humidity seemed to be a most important factor in the development of the attacks. Thus the great majority of the cases occurred in the boiler-room, the air of which contains escaped steam and is of relatively high humidity, and in the "mixer," where the raw sugar is emptied into the melting-reservoir, over which the men work and where there is constantly present a large quantity of aqueous vapor. There is also a relatively high degree of humidity where the centrifugal machines are running, which is partly overcome by the forcing in of large quantities of cool air, keeping the temperature down, but not proportionately reducing the danger.

From the temperature-records it would also appear that temperatures several degrees higher can be borne if the atmosphere is dry than if it is moist. In the boiler-house the temperature varied from 120° F. to 132° F., averaging between 122° F. and 124° F., with no great percentage of cases, while on the machine-floor, with a temperature between 112° F. and 120° F., averaging from 115° F. to 117° F., with a high degree of humidity, 60 cases developed. New men, unaccustomed to the work, suffered more than the old hands. Men who had been able to eat and sleep while off duty rarely became prostrated, while of those unable to eat and sleep during the hours of rest few escaped. All of the men, at least the larger percentage, drank beer freely, and many claimed that it enabled them to better withstand the effects of the heat. There was certainly no evidence of their suffering as much as those who drank but little or none at all. Those who drank largely of the water were extremely prone to suffer.

SYMPTOMS.—The most constant symptom, and the one of which the patient complains the most, is "cramp," usually referred to the region immediately below the ensiform appendix, not infrequently associated with similar pain in the calves of the legs, occasionally in the back, sometimes also in the hypogastrium, less commonly in the thighs and in the upper extremities. The patient also complains of difficulty of respiration, as though a weight were on his chest. Occasionally there is pain in the splenic or hepatic region. In nearly all of the cases headache is present, the character of which, according to the patient's statement, is sharp and throbbing; it is usually temporal or supra-orbital, rarely occipital. In some of the cases nausea was present; vomiting rarely occurred. The patient is agitated; muscular movements are executed in a jerky manner; the skin is pale, usually cold and clammy if the temperature is below 102° F. or 103° F.; rarely will the surface-temperature

be high. The axillary temperature is not always to be depended upon; in the fatal case, to be narrated later, the axillary temperature was only 105° F., while the rectal temperature was 108° F. In a few of the cases diarrhea was present; in the majority constipation preceded the attack.

Consciousness rarely wavers until the temperature passes 106° F. Its gradual loss may be briefly outlined as follows: The patient feels sick at stomach, and may even attempt to vomit; there is vertigo; the pupils sluggishly respond to light but not in accommodation. The eyes are vacantly fixed, the lids move slowly and infrequently; the voice wavers, often becoming sepulchral.

This condition slowly passes into delirium, which occasionally becomes active and at times fierce and uncontrollable, and during which convulsive movements may occur; these usually begin in the extremities, but may, later, involve the muscles of the trunk, more particularly those of the back, and occasionally those of respiration, giving rise to interference with breathing and cyanosis. During the convulsive seizure the arms are drawn closely to the sides and the elbows backward, so that the patient may rest upon the elbows and heels or elbows and buttocks; the head is rotated from side to side; respiration is sighing, occasionally moaning; the pupils do not respond to light, and not infrequently the lids are spasmodically closed; the pupils may be unequal. The patient swallows with difficulty, if at all. As the temperature cannot be taken in the axilla or in the mouth, the rectum must be depended upon. The mercury in the thermometer rapidly rises to 106° F., 108° F., and 110° F., or even higher, and unless the temperature be speedily reduced death must ensue. In the milder cases the temperature is below 105° F.

Speech may be jerky. There is intense headache. The skin may be moist, or it may be dry; if moist, it is cold and clammy. In either case the skin and lips are pale. The conjunctiva is brilliant. The ears are cold. The finger-nails are blue or of an ashen whiteness. Not infrequently there is tenderness in the hepatic and splenic regions. Untreated, these cases, as a rule, become transformed into a graver type. Removal from the heated surroundings to a cooler place does not entirely prevent their progress, and the large majority of cases become progressively worse. If the case progresses unfavorably, coma sets in. In fulminating cases coma may develop without any precursory symptoms.

The cardiac impulse is diffused, as though the ventricles were distended and the organ laboring. The pulse is "floody," a term coined to express the condition. To the finger it is like a sudden flood of blood coursing in the channel of the vessel, and disappearing upon the slightest pressure. Irregularity in the pulse and in the cardiac rhythm is a constant feature. There is ordinarily no increase in the intensity of the heart's sounds, certainly no accentuation.

The urine is scanty and high-colored, and when the pyrexia becomes excessive albumin may be temporarily present in small quantities. There is a constant desire to urinate, though often no urine is voided. There is pain in the cervical region, more particularly posteriorly, on either side of the median line. There is almost invariably pain in the back, and in a few cases girdle-pains were present.

The patient may be conscious of the high temperature; but, as a rule, he feels cool, not infrequently chilly when brought out of the intense heat. In a number of cases in which the temperature ranged about 105° F. a blanket felt comfortable. The pyrexia is, as a rule, not appreciable on the skin or surface during consciousness.

In one case cyanosis manifested itself. In the milder cases the temperature ranges from the normal to 102° F. The patient complains of flushes of heat alternating with chilliness. There is great thirst. Removal from the extreme heat will often be followed by a gradual return of the temperature to the normal, and only weakness, entirely disproportionate to the other symptoms, remains.

DIAGNOSIS.—There is, of course, no difficulty in making the diagnosis of a well-developed case of thermic fever in which the temperature is characteristically high. Cases of this kind, unfortunately, are not those in which mistakes are made, and there is but one condition with which they may be confounded, namely, uremia. It is scarcely possible to mistake thermic fever for apoplexy. The temperature would in almost all cases be the guiding point, and the marked disparity between the internal and surface temperature will always lead in the right direction. One of the cases that did badly in treatment, and which afterward died, presented many of the features of uremia. We must confess that the breath had a distinct urinary odor. There were convulsive seizures, and the moaning and gritting of the teeth not uncommonly observed in uremia. There was no urine in the bladder. Of course, the temperature is the diagnostic point of dependence. We are convinced that many of the milder cases are mistaken for cases of ordinary cramps, enteralgia, or intestinal indigestion, by reason of the abdominal pain that is almost invariably present. The patient, however, who has had cramps or intestinal indigestion will immediately recognize that there is a difference in the character of the pain; there is besides some elevation of temperature—not sufficiently great, however, to make the diagnosis positive. In the earlier hours of the attack the temperature will usually range from 102° to 104° F.

The skin will be cold and clammy; nausea will be present, occasionally vomiting. The character of the cramps is an important factor in making the differential diagnosis. They are more frequent than in ordinary enteralgia, and are not relieved by counter-irritants, pressure, or hypodermatic injections of morphine. In one case, a grain and a half of morphine were administered hypodermatically without effect upon the pain. Such a condition will often aid in making a diagnosis.

PATHOLOGY.—The consideration of the pathology has been deferred until after the consideration of the symptoms and diagnosis, on account of its hypothetical character.

The pathology of thermic fever is obscure. The most lucid observations upon the subject are those of Professor H. C. Wood. The fever itself is held to be "due to paralysis, under the influence of the extreme external heat, of the center in the medulla which regulates the disposition of the bodily heat. Owing to this disturbance more heat is produced while less is given off than normally" (Osler). This statement is but a juggling of words, and expresses neither the morbid anatomy nor the pathology of the condition. That there is venous engorgement is, in a sense, true, but it is not entirely so. Probably the apparatus more particularly affected is that portion of the circulation included in the portal system. Here, no doubt, the blood accumulates in the largest quantity, as may be inferred from the facts that follow.

The area of hepatic percussion-dulness is enormously increased, and, as a rule, in proportion to the intensity of the attack; when the overlying abdominal wall or the distended intestine permits of careful splenic percussion it will likewise be found that the area of splenic dulness is increased. The location of the pain corresponds with that observed in some of the forms of malaria in which hepatic and splenic congestion is a prominent feature. Again, the surface temperature of the abdomen is higher than that of any other part of the body; the rectal temperature is from two to three degrees in ordinary cases, and from three to five degrees in more severe cases, higher than the temperature of the mouth, which in turn is one or two degrees higher than the temperature of the axilla. Other features suggestive of an accumulation of blood in the viscera are the extreme pallor of the skin, the inability to produce redness by ordinary methods and the difficulty that attends attempts at blood-letting. In the one case in which blood-letting was resorted to, the blood was extremely dark. It clotted with usual promptness, but showed no other evidence of alteration than the intense darkness.

The cause or causes that determine an accumulation of blood in the viscera probably act in one of two ways, or possibly both: (1) Contraction of the cutaneous capillaries under the stimulus of the extreme heat, thus diverting the blood to the viscera; (2) Paralysis of the vascular apparatus of the portal and possibly of the pulmonary system, favoring stagnation. Which is the correct hypothesis cannot at present be stated. Good reasons may, however, be presented in support of each.

The cause of the headache is probably the intense cerebral congestion. The absence of muscular fibers in the cerebral arterioles is in favor of the view of stasis. The cramps are probably abortive convulsive seizures due to the interference with excretion and the retention of metabolic products, closely resembling the condition in eclampsia. It is not necessary to refer to the degenerative changes that have been found in the viscera post-mortem, as it is not probable that they occur in cases in which recovery takes place.

PROGNOSIS.—The prognosis is largely dependent upon the time at which the patient comes under observation. Before consciousness is lost the prognosis is extremely favorable. In the case of a man who staggered into the accident-room, unable to give his name, check-number, or address, and in whom the temperature was 106.5° F., recovery was rapid under treatment, and the man returned to work, contrary to our advice, and so far as we are aware suffered no inconvenience afterward.

Apart from early treatment, the prognosis will depend almost entirely upon the temperature. If this does not exceed 105° or 106° F., recovery is the rule; if the temperature be higher the prognosis is less favorable, although very high temperatures are not necessarily fatal. In cases in which the temperature reaches 107° or 109° F., the patients almost always recover, provided the pyrexia is not long continued.

Age is a determining factor in prognosis. The old are less favorable subjects than the young. The habitual use of alcoholic stimulants has been supposed to render the prognosis in individual cases more grave, and as the laborers in the refinery, mostly Germans, habitually drink large quantities of beer, perhaps whiskey and other intoxicants, one would suppose that the mortality must necessarily be large. This has, however, not been our experience. A man with the alterations of tissue and function that accompany the habitual use of alcohol would be more likely to succumb than one in health; thus chronic catarrhal conditions of the stomach and cirrhosis of the liver must add materially to the gravity of the case; that alcohol *per se* does so is doubtful.

TREATMENT.—The treatment of cases in which there is elevation of temperature may be summed up in the injunction, "*increase the peripheral cir-*

culation;" anything that will accomplish this end will help the patient. If the skin can be made intensely red, and the pulse, which may not be perceptible at the wrists, can be brought up, the patient will immediately feel better, and in the large majority of cases consciousness will at once return. While under ordinary circumstances the restoration of the activity of the cutaneous circulation is easy, in thermic fever it is not so. In the treatment of our cases, large undressed sponges, gritty and hard, were freely used by two muscular assistants. In all of the cases except the fatal one and another to which we shall refer later, cutaneous redness was secured in from three to fifteen minutes. With the restoration of an active peripheral circulation the symptoms rapidly subsided. Remedies that attain this end may here be used to advantage. Atropine seems certainly indicated, and in our hands has given excellent results. If less than $\frac{1}{60}$ of a grain be given hypodermatically at a dose the medicament is wasted; in severe cases $\frac{1}{40}$ or even $\frac{1}{30}$ of a grain may be used, preferably in two doses, with a brief interval —say, of five minutes.

Aromatic spirit of ammonia acts happily and is the only medicament which acts with equal promptness when administered by the stomach or subcutaneously. It should be given in doses of from half a dram to a dram in milk. Morphine in doses of not more than a quarter of a grain may be advantageously combined with either aromatic spirit of ammonia or atropine. Strychnine does good in cases in which there is great prostration or inordinate muscular weakness. The nausea is best combatted with cracked ice.

Toward the close of the epidemic the advisability of employing amyl nitrite was discussed, on account of the promptness with which it induces a peripheral determination of the blood. The drug was used in but one case, but with the most gratifying results. A "pearl" containing three minims was crushed in a handkerchief and the patient allowed to inhale the vapor freely. The headache and cramps immediately disappeared like magic, and the temperature, which had been 102.6° F., fell in a few minutes to 99° F. No other medicament was used. Half an hour after the treatment the patient felt entirely comfortable, with the temperature normal, and after the administration of morphine sulphate, grain $\frac{1}{4}$, and atropine sulphate, grain $\frac{1}{40}$, hypodermatically, he proceeded home and reported for work on the following day. Although we have not employed nitro-glycerin, it seems probable that it might be advantageously substituted for amyl nitrite. Ice applied to the head will alleviate the headache.

The reader has, no doubt, ere this, expected that each successive sentence must bring some reference to the cold bath. While we believe the cold bath to be a most efficient adjunct in the treatment of the hyperpyrexia, we would at the same time urge that careful judgment be exercised in its employment. Given a patient with embarrassed peripheral circulation, with empty capillaries on the exposed surface, and the blood stagnant in the glandular viscera, one should hesitate in the use of an agent that admittedly favors the very condition to be combatted. The efficiency of the bath depends largely on the accompanying friction. In 75 per cent. of the cases here reported the cold bath was resorted to.

In all cases the routine treatment may be summed up as follows: The patient's temperature was taken; he was then placed in a low bath tub, in which the water was exactly of the same temperature; he was rubbed with large gritty sponges until redness of the skin was induced; this was followed by the turning on of the spray, the impact of which maintained the counter-irritation. After five or ten minutes the patient was removed from the bath and thoroughly rubbed with the sponges. If the temperature had not sufficiently subsided he was again placed in the bath and the process repeated until the temperature was reduced to the neighborhood of 100° F.; in the meantime he was given, either by the stomach or hypodermatically, $\frac{1}{20}$ of a grain of strychnine, $\frac{1}{40}$ of a grain of atropine, $\frac{1}{8}$ of a grain of morphine, and 20 drops of the tincture of digitalis, followed by a teaspoonful of aromatic spirit of ammonia in a glass of milk. The cases did well, and while we would not disparage the employment of the cold bath, we would insist that its efficiency must depend upon the energy of the friction, to secure a cutaneous afflux of blood.

In mild cases, in which the temperature was 101° F. or 102° F., from 5 to 10 grain doses of antipyrin or antifebrin relieved the headache, and usually the cramps, and reduced the temperature. We have not observed any unfavorable symptoms after the use of either of these drugs in properly selected cases. When we have used them we have usually accompanied their administration with applications of cold to the head, either by the ice cap or the cold spray, preferably the latter. The cold spray, if applied to the head and nape of the neck, will rapidly reduce the temperature, and time may be gained by using friction upon the back and upon the chest and extremities at the same time.

Alcoholic stimulants should be used in the large majority of cases. They favor increase of the peripheral circulation and invigorate the flagging heart. Blood-letting was resorted to in a single case, and upon the following indications: When brought into the accident-room the temperature of the patient was 103.6° F., and he presented no extraordinary symptoms. He was given $\frac{1}{60}$ of a grain of atropine, with $\frac{1}{8}$ of a grain of morphine. Friction was applied

to the chest and trunk; he was directed to lean over the bath-tub, and the cold spray was applied to the head, neck, and shoulders. The respiration became impeded; the man gasped for breath; the lips, ears, and finger-nails became blue, but not the general surface. Cheyne-Stokes breathing appeared. The man was bled to the extent of eight ounces, with immediate relief. He was sent to the Pennsylvania Hospital and returned to work on the following day.

The cold spray has in our hands been a most beneficial agent. The temperature of the water used varied from 40° F. to 55° F., but the force with which it was applied enhanced its usefulness, as the process practically amounted to active flagelation without inducing pain, and was promptly followed by redness.

As soon as active treatment was discontinued, or when practicable during its continuance, the patient was kept beneath the cool-air blast. One who has never seen the benefits of such a blast cannot appreciate its utility. Under active friction of the skin in the air-blast in many cases the temperature promptly subsided. The headache was invariably alleviated. The cool-air blast is, in our opinion, a most valuable adjunct. With it should be conjoined active friction, or if the patient is quiet, he should be in the recumbent posture, covered with a thin sheet, leaving the face free.

The regulation treatment in cases in which the temperature was subnormal (heat-exhaustion), consisted in the administration of stimulants, usually alcoholic, although hot drinks may with advantage be combined with alcohol. Rest in the recumbent posture is imperative.

It is probable that in the cases in which the temperature was practically normal the men were malingerers; but as they were few, they have not been separately considered.

SURGICAL DISEASES OF THE GALL-BLADDER AND GALL-DUCTS; WITH A REPORT OF FIVE CASES.

BY MILES F. PORTER, M.A., M.D.,[1]
PROFESSOR OF SURGERY AND CLINICAL SURGERY, MEDICAL DEPARTMENT TAYLOR UNIVERSITY, FORT WAYNE, IND.

CASE I.—Mr. R., seventy years old, German, a shoemaker, after suffering for about three years with marked jaundice, pain in the hepatic region, distention of the stomach and bowels with gas, and having nearly died from hemorrhage from a slight scalp-wound of the vertex received during this period, was placed in the hospital under the care of Dr. H. McCullough, who, with myself, regarded the case as one of malignant disease. The patient lived but a short time thereafter, and a *post-mortem* examination revealed the existence of inflammatory obliteration of the common duct, while the gall-bladder was closely contracted about a gall-stone, and was attached to the transverse colon, with which it communicated through a small opening. In the cystic duct was a second stone. The hepatic duct was patulous, so that some bile escaped through it and the remains of the gall-bladder into the large intestine.[1]

CASE II.—Mrs. P., fifty-two years old, a married woman, suffered for several years from what she termed "wind in the stomach," and was rubbing her abdomen to allay the pain during an attack, when she discovered a tumor, for which she consulted me. The tumor was not tender, but manipulation of it occasioned distress in the epigastric region. A diagnosis of gall-stones in the gall-bladder was made, and cholelithotomy was performed. From this the patient recovered. She is at the present writing in good health, but has a hernia at the site of the incision. She had for years also suffered from an anal fistula, and this was operated upon subsequently.[2]

CASE III.—Mrs. A., fifty years old, was seen by me, in consultation with Dr. H. McCullough, October 20, 1891. She gave a history of pain in the stomach, coming on at irregular intervals for several years, and accompanied by eructation of gas. She had never been jaundiced until the present illness. During the last illness she was unable to retain anything on the stomach. Examination showed the stomach to be somewhat distended with gas, which by pressure could be made to pass into the bowel, always with gurgling. No tumor could be detected. A diagnosis of obstruction at or near the pylorus and obstruction of the common bile-duct, due to an unknown cause, was made. Ten days after this visit the woman died. At the *post-mortem* examination the gall-bladder was found closely contracted about a calculus, and the common duct and duodenum, close to the pylorus, very much obstructed by adhesions resulting from a peritonitis of old standing.

CASE IV.—Mrs. S., fifty-four years old, the mother of five children, in 1865 began to have severe "dead" pain in the right hypochondrium, ceasing suddenly. These pains recurred at intervals of from two weeks to two years until 1885, when, after doing some hard work, she was rather suddenly seized with the same pain, which continued to trouble her at intervals for eighteen months, when it disappeared, and she grew fleshy and strong. In 1889 she commenced losing flesh, and complaining of pain in the same region, remittent in character, accompanied by pronounced jaundice and intense itching of the whole cutaneous surface. Soon after this last attack commenced, there developed pain and a tumor in the left hypochondriac region. The patient has suffered much from piles, and lately from prolapsus ani, and complains greatly

[1] Read before the Indiana State Medical Society, May 13, 1892.

[1] This case was reported and the specimens shown to the Fort Wayne Academy of Medicine.

[2] A report of this case will be found in the Transactions of the Indiana State Medical Society for 1889.

of distention of the stomach and bowels with gas. I saw her on January 15, 1892, when the foregoing history was obtained. She was much emaciated, deeply jaundiced, and had the expression of one who had suffered much.

On examination, the liver was found enlarged and hard; a tumor of the size and shape of the spleen, but rather harder, was detected in the left hypochondrium. A diagnosis of obstruction of the common or hepatic duct, probably by gall-stones, with enlargement of the liver and spleen, was made. The probability of malignancy was also entertained. Laparotomy was performed on February 20th, with the understanding that it might accomplish no more than the establishment of the diagnosis. The gall-bladder was found obliterated, and the hepatic or common duct bound to the posterior wall of the abdominal cavity, and containing three calculi, one of the size of a filbert, the others slightly smaller. The liver was slightly hobnailed in appearance, and hard. After trying to dislodge the calculi, and failing, the abdomen was closed. The case went on well until the morning of the fourth day, when the pulse became so weak that the nurse could not count it, and the patient complained of suffocation. At 2 P.M. on the same day I saw her, when the pulse was 147, the temperature 99.5° F., and the sense of suffocation less. Whiskey had been given, and I ordered nothing else. By 6 P.M. the pulse was down to 93, and all again went on well until the fifteenth day, when the woman complained of being cold; the pulse was 152, and weak. A hypodermatic injection of twelve drops of tincture of digitalis was given, with one-fiftieth grain of strychnine. The pulse soon fell to 80, and continued between that and 90 until the twenty-third day, when the patient went home. The strychnine was continued for several days after her return home.

The stitches were removed on the eighth day, the wound having healed perfectly. Up to April 12th the patient was improving; the stools were usually well-colored; there had been no itching since the first few days after the operation, unless she took morphine, which she has had to do for the pain, which still continues, though in less severe a degree. She now takes one-sixteenth of a grain of morphine twice daily, whereas before operation she took a quarter of a grain. The jaundice is still marked, though less decided since the operation. The greatest inconvenience results from gaseous distention of the bowels and stomach.

CASE V.—Mrs. D., a German, thirty-three years old, mother of two children, was referred to me by Dr. Carl Schilling. She commenced having cramps in the stomach eleven years ago; they were very severe, and would cease suddenly. They continued to trouble her for eight years, since which time she has had none, but has complained daily of severe burning pain, commencing in the right hypochondrium, and extending to the epigastrium and back. One year ago she first noticed a lump in her side. There is no clear history of jaundice, though the woman states that she has had "liver spots." Gas in the stomach and bowels has greatly distressed her during the whole of her illness. Examination revealed a freely movable tumor, apparently solid, in the region of the gall-bladder. A diagnosis of distention of the gall-bladder with gall-stones was made. Laparotomy was performed February 29, 1892. On opening the peritoneum, an elastic tumor was found; on introducing a trocar and canula, pus flowed freely. The gall-bladder was emptied, and explored with the finger and probe, but no stone was found. There were no adhesions. The bladder was stitched to the abdomen, and a rubber drain was left in. A sharp attack of peritonitis on the third day disappeared like magic under free catharsis from the use of salines. The stitches were removed on the eighth day, when the wound was healed, except where the drain had entered. The patient was allowed to get up on the fifteenth day, and left the hospital for her home on the twentieth day. The drain was removed on the twenty-third day. At no time was there more than the smallest quantity of pus in the discharge. At first this consisted of mucus, with very little bile, but subsequently it became clear bile, less profuse, and the woman expressed herself as well.

In three of the five cases here reported there was practically obliteration of the gall-bladder; that is, the viscus was so contracted, bound down, and changed, as to make it impossible to stitch it either to the abdominal wall or to the intestine. That this condition is of more frequent occurrence than we would be led to believe from the literature I feel sure, and it should be borne in mind in giving opinions in similar cases.

Kocher[1] performed a cholelithotripsy in a case in which the shrunken gall-bladder would not permit of the performance of the cholecystenterostomy.

Robson,[2] of Leeds, reports a case in which the gall-bladder was so far from the surface that he had to use the omentum to shut out the cavity of the peritoneum by first stitching the former to the gall-bladder, and then to the parietal peritoneum.

Shepherd,[3] of Montreal, used the liver and omentum for the same purpose in a similar case.

The use of contiguous tissues for the purpose indicated in the cases referred to offers hope in similar cases otherwise hopeless, and might have been applied in Case IV; but I feared that the woman would not withstand the shock of so prolonged an operation. Greater emphasis should be placed upon the diagnostic significance of the fermentation and consequent accumulation of gas in the stomach and bowels, together with pain and distress in the stomach. These phenomena also add evidence to the importance of the bile as an antiseptic. Piles and fistulæ, and rectal distress, are also of diagnostic significance. Of course, in Case III the gaseous

[1] Annual of the Universal Medical Sciences, vol. iii, 1891.
[2] Annals of Surgery, vol. xiv, No. 5.
[3] Ibid., vol. xii, p. 333.

distention of the stomach was in part due to the mechanical obstruction.

While empyema and dropsy of the gall-bladder are usually due to gall-stones, they may be due to other causes, and may be susceptible of cure by cholecystotomy. H. C. Dalton [1] reports two cases of stricture of the gall-ducts due to inflammatory action from causes other than calculi.

Cases I and V further illustrate the difficulty of correct diagnosis.

Langenbuch,[2] who had performed twenty operations on the gall-bladder at the time, said: "Exploratory incision only will determine exactly with what kind of tumor we have to deal."

Tait[3] made a median section below the umbilicus for what he supposed to be a parovarian cyst, and found a distended gall-bladder.

Mears[4] made an exploratory incision in the lumbar region, in a case suspected to be one of floating kidney, but found a distended gall-bladder, with the cystic duct plugged by a calculus. His patient recovered.

West Hughes,[5] of Los Angeles, says: "So far as I can ascertain there have been only two other cases of non-adherent suppurating tumor of the gall-bladder successfully operated upon. There have been several such cases reported with fatal result, death being caused by suppurative peritonitis, due to the entrance of the contents of the gall-bladder into the peritoneal cavity. It would seem far better to operate in two stages, when this danger can be entirely eliminated." This danger of contamination of the peritoneum eliminated, there can be no doubt but that the completion of the operation at once is preferable. Careful sponge-packing will not always suffice. My experience leads me to believe that the contamination comes not so often from leakage at the side of the canula at the point of perforation, but from the pus that flows over the extremity of the instrument and down upon abdomen, hands, sponges, etc. This may be effectually prevented by first passing the trocar and canula through a piece of dentists' rubber dam of sufficient size. Then, with the hand grasping the instrument between the abdomen and rubber, trocar and canula are introduced; the trocar being removed by an assistant, the pus flows over the rubber, leaving sponges, hands, and wound clean. If thought advisable, the cavity can be washed out before removing the canula. Had this idea occurred to me years ago I might have saved my patients some discomfort and myself much worry.

[1] Annals of Surgery, vol. ix, p 99, 100.
[2] Annual of the Universal Medical Sciences, 1890, pp. 46, 47.
[3] Loc. cit.
[4] Annals of Surgery, vol. x, p. 241.
[5] Ibid., vol. xii, p. 338.

In Case IV, as in a case of gastrostomy already published,[1] I believe the hypodermatic use of digitalis prevented death. I desire to urge the use of digitalis in this way, ofttimes advantageously combined with strychnine, not only after abdominal section, but in all cases in which death threatens from heart-failure.

In all, five cases are here reported: Four of gall-stones, and one of empyema of the gall-bladder; there was one death from obstruction of the duodenum, and one from cholemia; there were two cholecystotomies, one for stones and one for empyema, both cured. There was one incomplete operation, the case being somewhat benefitted, though still suffering, and threatening soon to die of cholemia.

47 W. WAYNE STREET.

CLINICAL MEMORANDA.

ALMOST TOTAL DESTRUCTION OF THE VELUM PALATI CORRECTED BY AN ARTIFICIAL SOFT PALATE, PRODUCING NOT ONLY GREATLY IMPROVED SPEECH, BUT AN IMMEDIATE INCREASE OF AUDITION.[2]

BY JAMES THORINGTON, M.D.,
OF PHILADELPHIA.

L. B., a girl, sixteen years old, born of English parents in Philadelphia, doing housework at home, was small in stature and features. The family history was good. Menstruation commenced a year ago, and has been normal and regular.

Her general health was good until July, 1884, when she contracted scarlet fever, followed two weeks later by diphtheria; she was confined to bed and to the house for the subsequent six months, on one occasion being considered beyond recovery. The patient states that her throat was the chief point of treatment, various washes, gargles, swabbings, etc., being used. No positive history of cauterization of the throat could be obtained. In one instance so much force was employed in making a throat-examination, with the handle of a spoon, that four loose (deciduous) teeth were knocked out, and the left commissure of the mouth was cut or lacerated for a distance of half an inch, leaving an irregular skin-scar.

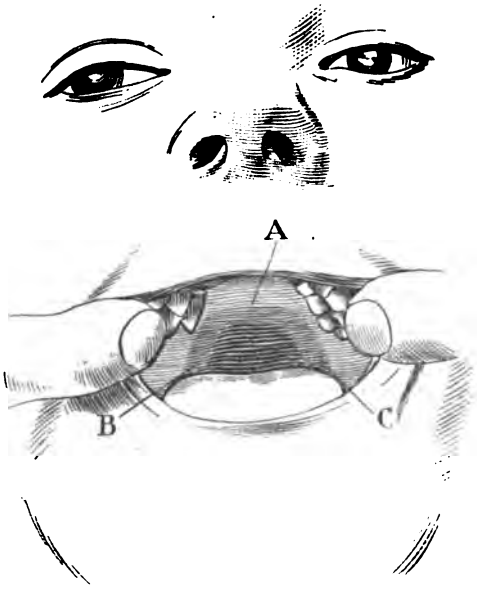
The patient's voice has a most marked nasal twang, and, while speaking, the alæ nasi can be plainly seen to open and close the nasal entrance. No history whatever of food or liquids at any time passing into the posterior nares and out through the nose could be obtained.

The patient is hard of hearing; she watches the speaker's lips carefully, and states that ever since the attack of scarlet fever there has been a constant discharge of a very offensive-smelling and light-colored pus

[1] Journal American Medical Association, vol. xi, p. 123.
[2] This case was presented at the Throat Clinic of the Jefferson Medical College Hospital, in January, 1892, and was placed under my care by Prof. J. Solis-Cohen, for treatment of the pathologic conditions and supplying the deficiency in the soft palate with an artificial appliance.

from both ears; the discharge is at times quite thick ("creamy"), and at other times watery in consistence. She has occasionally noticed that in the act of coughing, sneezing, or blowing the nose, air passes through and out of the ears. She has not had medical attendance or treatment since convalescence.

FIG. 1.



Mouth held open with index fingers.

A. Uvular band or cicatrix. B. Right palatine pillars, shown as one. C. Left palatine pillars, shown as one.

Looking into the open mouth (see Fig. 1, half the normal size), all of the permanent teeth are seen to be present, except the two upper cuspids, which are deciduous. The upper teeth are not regular in position. (See edges of the roof-plate, F, in Figs. 2 and 3.) The roof of the mouth is narrow and deep. The tongue appears normal. The fauces show complete absence of the uvula, and in its stead a broad (antero-posterior) cicatricial band, bright-red in color as compared with the surrounding pale tissues, extending across and connecting at the top the lateral pillars on each side. (A, in Fig. 1.) The lateral pillars—the right more particularly—are also broad cicatricial bands, and lie close together, almost as one, at their junction with, and for a short distance below, the uvular band, but may be separated with the end of a probe. (B and C, Fig. 1.) The tonsils are absent. In phonation no movement can be seen to take place in the right anterior pillar; the right posterior pillar acts slightly; the left pillars contract somewhat, as does also the uvular band, especially its left half. Digital examination proves the right anterior pillar to be a firm, unyielding cicatrix, without any indication whatever of muscular tissue. The left pillars, uvular band, and right posterior pillar, while composed of a great amount of cicatricial tissue, have some muscular fibers remaining.

The buccal pharynx—that part of the pharynx seen on looking into the widely-opened mouth—is one large, stellate, or spider-shaped cicatrix, having its body in the center of the buccal pharynx, and its many radiations or branches passing in as many directions. Viewing the post-nasal space with the mirror the left tensor palati muscle is seen to stand out prominently, as compared with its fellow of the opposite side, which consists of cicatricial tissue and has but slight muscular action; as a result, the entrance to the post-nasal space from below is of irregular shape. (K, in Fig. 2.) The various parts, as seen in the post-nasal space—septum, turbinates, entrance to Eustachian tubes, etc.—present no abnormality, except a chronic thickening of the mucous membrane; the otherwise normal condition of the Eustachian tubes having an important bearing on the result of the treatment, as will hereafter be explained. The larynx presented no abnormality.

The auditory auricles are normal; the auditory canals, after the removal of the accumulated pus, were found narrow, deep, and macerated, but, owing to sensitiveness or fear on the part of the patient, it was impossible to obtain a satisfactory view of the membranes or ossicles. Air was forced through the ears. Hearing by the watch was: Right, 5 inches; left, 4 inches.

The treatment resolved itself into three parts: First, for the post-nasal and pharyngeal changes; second, for the otorrhea; and, third, the procuring, for the relief of the altered condition of the parts, of an artificial appliance that would improve speech and, possibly, hearing. The parts being so contracted and muscular tissue scarce, the idea of surgical interference was not entertained.

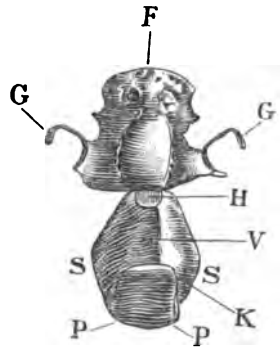
The patient being in apparently good health, there was no indication for constitutional treatment, and none was given. In consultation with a dentist it was considered possible (though not definitely promised) to make a velum that would assist the patient's speech and, perchance, the audition; this possibility being based on the assistance that it was hoped or anticipated could be obtained from the muscular fibers in the right posterior and left pillars, so as to act on the artificial velum. While this velum was being made, attention was given to the treatment of the throat and ears. For the former, alkaline washes of various strengths were used to keep the parts clean and free from the thick, tenacious mucus that would otherwise accumulate. Under this treatment the secretion diminished in quantity and in tenacity, and with occasional applications of a weak iodine-solution the thickening of the membranes was much reduced.

The auditory canals were kept clean by means of a weak solution of hydrogen dioxide, dried with absorbent cotton, and daily insufflations of boric acid. After a few days of this treatment the discharge lost its offensive odor, and at the end of nine weeks there was a cessation of the discharge from the right ear, and in the left at the end of twelve weeks. Cerumen appeared at about this time, the first noticed since the attack of scarlet fever. A watch could now be heard with the right ear at 7 inches; with the left at 7 inches. Each ear showed absence of drum-membrane and ossicles. The promontory could be seen, and the foot of the stirrup resting on the oval window.

Figs. 2, 3, and 4 show the upper, under, and right lateral surfaces, respectively, of the artificial palate, one-half the natural size. F, in each figure, is the roof-plate, or the plate that fits to the roof of the mouth; it is composed of vulcanized rubber, and is exactly the same kind of a plate that is used for an upper set of false teeth. G G, in Figs. 2 and 3, are gold clamps that fasten

round the first molar teeth, to hold the roof-plate F *in situ*. I, in Fig. 3, is the fastened end of a narrow piece of gold that runs backward through the substance of the roof-

FIG. 2.



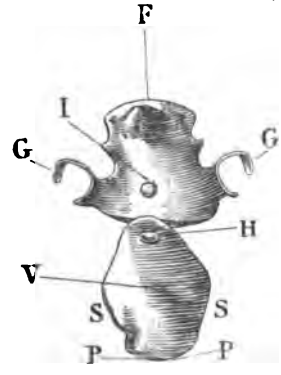
Upper surface of artificial palate.

F. Roof-plate. G G. Gold bands. H. Upper part of gold stud (*vide* H, in Fig. 3). K. Heel of velum. P, P. Posterior or pharyngeal margin of velum. S, S. Lateral or arch surfaces of velum.

plate to H, Figs. 2 and 3, where it is broadened out into a stud, which holds the velum V, Figs. 2, 3, and 4.

The velum is composed of soft red rubber, is very pliable, and takes its original shape as soon as the pressure is removed. K, Figs. 2 and 4, is a (hollow) prominence, or heel, which fits into the naso-pharyngeal

FIG. 3.



Under surface of artificial palate.

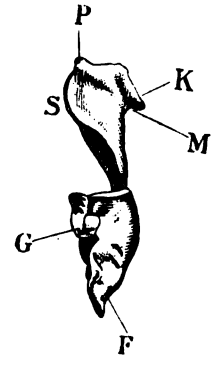
I. Fastening of gold band that passes to form the stud H (Figs. 2 and 3). (Other letters have the same references as in Fig. 2.)

space. M, in Fig. 4, shows the anterior part of the heel, which approximates the back of the uvular band, but does not exert any pressure of itself, though just near enough to receive pressure at the time of muscular contraction. The upper margin of the heel, when in position, will be just below the floor of the nares. The irregular shape of the front of the heel will be noticed in Fig. 2.

Placing this unique piece of workmanship *in situ*, it will be understood from the description given that, the velum being in repose, the edges marked S and S lie accurately against the palatine arches, and that the posterior or pharyngeal margin, P P, Figs. 2, 3, and 4, stands out or hangs away from the pharyngeal wall, leaving a space of less than two-eighths of an inch, which is quite sufficient to allow of free respiration through the nares, and for thin secretions to pass down from above.

When the patient phonates with mouth wide open, the left arch and tensor palati contract at S, Fig. 2, and force the velum up and back; at the same time the pharynx contracts, comes forward and meets the velum at P P, thus completely closing the nasal passage, and directing the voice forward through the mouth, the artificial velum acting the part or taking the place of the natural velum in opening and closing the nasal passage, as required in talking or swallowing.

FIG. 4.



M. Anterior aspect of heel. K. Right side view of artificial palate.

(Other letters have the same references as in Figs. 2 and 3.)

As for the velum itself, much is to be said in its favor The danger of it becoming detached and swallowed is almost *nil*, when it is observed how securely it is held in position by the stud H, Figs. 2 and 3. Owing to the size of the velum, in comparison with the smaller size of the laryngeal opening, it would be impossible for it to take that course, should it become detached. The risk of irritating the parts with which it comes in contact was carefully considered, and for this reason the soft rubber velum was first made; and as there has been no inflammation or unpleasantness following its use, a hard rubber velum is now in process of construction. One important reason, perchance, that the velum has not irritated the fauces is on account of the insensitive cicatricial condition of the parts.

Secretions accumulate on its upper surface, especially if thick, and, as a consequence, there is a reduction in audition, no doubt from pressure, or plugging of the Eustachian tubes. This is the only inconvenience resulting from the use of the velum, but one that the patient can, and does, easily remedy by removing and cleansing the velum and the parts. There is no difficulty in this; the patient passes the index-fingers to G G, Fig. 2, and, pulling downward on the gold clasps, the plate falls, is lifted from the mouth and cleansed in tepid water; it is easily and securely re-inserted by passing it well back and bringing the gold clasps to the edge of the first molars and pressing upward.

The velum has been made as light and thin as possible, and accurately approximates the buccal pharynx

when in action. Were it permissible to allow more space than the present two-eighths of an inch between its posterior edge and the buccal pharynx when in repose there would not be so much, if any, retained secretion, but this cannot be accomplished without leaving an opening into the nasal passage during the action of the velum, and thus neutralize the use for which it is intended. It is hoped that with the use of the velum the mucous membrane may continue to improve and the secretion remain thin enough to flow freely at all times through the space allowed, and by the aid of nasal inspiration the patient be able to draw the mucus into the throat. By reason of the retained secretion the patient is not allowed to wear the velum during sleep.

Two mechanisms being required in speech—the laryngeal and oral (the vibrator and resonator)—and normal speech requiring perfect coördination of the two, the velum in this case, by supplying the previous vacancy, gives almost perfect resonance as the result, and does away with most of the former nasal twang. This twang will further diminish and gradually pass away as the patient overcomes her habit of closing the nostrils with the alæ nasi. Prior to the use of the velum, in pronouncing words containing a *c* or *s* followed by a vowel, there was a marked *th*-sound, but this is rapidly leaving, and is now almost gone. Six was pronounced "thix"; seven, "theven"; sound, "thound"; Susie, "Thuthie"; cider, "thider"; Cincinnati, "Thinthinnati," etc.

The improvement in hearing that has resulted from the use of the velum is an advantage that equals, if it does not exceed, the bettered speech. As the title of this article states, the improvement in audition was immediate (R. and L. = 20 inches), and has increased gradually until at the time of writing, six weeks from the first use of the velum, the hearing for the watch has reached, right and left, 31 inches. As soon as the velum is removed, the audition for the watch falls to, right and left, 7 inches, showing that the improvement is most likely mechanical—*i. e.*, from the support given to the Eustachian tubes. Had the entrances to the tubes suffered from ulceration, as did the other tissues, it is not likely that the velum would have improved audition.

With this improved audition and speech the patient becomes a better and happier member of society, and now enjoys her surroundings and associates with greater satisfaction than at any time since her recovery from the scarlet fever. Prof. Cohen, who has just examined the case, pronounces it the most successful result he has ever witnessed in such extensive devastation of tissue.

1630 ARCH STREET.

ANEURISM OF THE AORTA IN A CHILD OF FOUR AND A HALF YEARS.

BY R. A. H. MACKEEN, M.D.,
OF COW BAY, CAPE BRETON.

IN the summer of 1889 I was called to see M. M., a little girl, four years and nine months old. Her mother stated that since the preceding spring the child had been troubled with a continuous, hacking cough, for which various remedies had been tried without avail. The child had failed somewhat in strength and suffered from shortness of breath. Otherwise she was able to play with her companions as usual. The family history was good. She had never suffered from severe illness, but in the previous winter, while running, she had fallen, striking her breast heavily upon the doorstep. Beyond a feeling of soreness, this accident did not occasion any inconvenience at the time.

Examination of the chest. Inspection showed a pulsating swelling in the first intercostal space just to the left of the upper extremity of the sternum. The pulsation was distinctly expansile, with a slight thrill, most distinct at the lower and outer part of the tumor. The breathing in the left lung was free and not interfered with, except over the surface of the tumor, where there was absence of respiratory murmur. In this region a systolic murmur could be heard. The left radial pulse was somewhat behind the right in time. The voice was not interfered with. A diagnosis of aneurism of the aorta was made.

The only explanation of non-involvement of the left laryngeal nerve would be that the aneurism must have arisen on the left side of the ascending part of the aorta and below the point at which the nerve crosses the vessels. Judging from its situation, it is not probable that the aneurism had any connection with the ductus arteriosus. The patient was afterward examined at my request by Dr. Wm. McKay, who agreed in the diagnosis. In the following summer I had the opportunity of showing the case to Dr. McPhedran, Associate Professor of Medicine in the University of Toronto, who, after a very careful examination, agreed with the previous opinion.

At the beginning of the next winter the patient was seized with a rigor and pain in the right side. There were coldness of the skin and great depression. Reaction did not set in for twenty-four hours, when there was elevation of temperature, accompanied by rusty expectoration. Pneumonia had developed in the upper lobe of the right lung. Though the crisis was apparently reached in due time, the lung did not close up, and soon underwent degeneration. Death resulted in the course of two months. It is to be regretted that no autopsy could be obtained.

It is safe to assume that at the most the patient could not have been more than four years and three months old when the aneurism developed, and her extreme youth lends special interest to the case. Henoch, with his large experience, never saw an aneurism in so young a child. Two cases were recently reported in the *British Medical Journal*—one in a patient three years old; and the other in a child four years old.

MEDICAL PROGRESS.

Cerebral Surgery.—HITZIG (*Berliner klin. Wochenschrift*, 1892, No. 29, p. 713) has reported the case of a mason, twenty-nine years old, who, following a blow in the right frontal region, complained of pain at the site of injury, with impairment of memory, defective intelligence, and attacks in which paresis of the left hand appeared, while the mouth was drawn to the left; speech and deglutition were likewise slightly affected. Subsequently, vision became impaired upon the right, and then upon the left. There had been no vomiting; and there was no alteration of the pulse. The head was bent

strongly forward and slightly to the left; the left shoulder drooped somewhat. There was bilateral papillitis and concentric limitation of the visual fields. The muscles of the right side of the face were paretic. The tongue was protruded a little to the right. There was also loss of power in the left upper extremity. There was some weakness of lower extremities, slightly the greater upon the left side. Sensibility was not deranged. The knee-jerks were exaggerated, the left in greater degree than the right. Ankle-clonus was present upon the left, and the skin-reflexes were exaggerated. In the right temporal region, in a situation corresponding with the anterior half of the origin of the temporal muscle, was a doughy tumefaction, painful upon pressure. A diagnosis of a tumor of the bone exerting pressure upon the brain in the temporal region was made, and operative procedure decided upon. A large extent of bone was removed in the right temporo-parietal region, leaving an opening in the skull of about 3½ by 4¼ inches. The bone in places was thin; in others, thickened. A large growth was found arising from the brain and penetrating the dura. The neoplasm was carefully removed. It weighed nearly nine ounces, and proved to be a mixed sarcoma. The patient recovered absolutely from the operation, without noteworthy aggravation of his previous paretic condition.

Carcinoma of the Cecum.—As the result of a careful study, MATLAKOWSKI (*Deutsche Zeitschrift f. Chirurgie*, Bd. xxxiii, H. 4 u. 5, 321) concludes that carcinoma of the cecum is not rarely a most chronic condition that may exist for years without giving rise to symptoms other than slight constipation and the presence of a tumor. The prognosis of operation at this stage would be most favorable. Resection, with immediate enterorrhaphy, is the ideal operation. If the patient come under observation with symptoms of intestinal obstruction, neither resection nor intestinal anastomosis is to be undertaken, but an artificial anus is to be established in the small intestine as near as possible to the ileo-cecal valve. When the patient has regained strength, resection and enterorrhaphy may be performed or an anastomosis established. An artificial anus should never be established after resection of the cecum has been performed, except in case of obstruction; instead, an enterorrhaphy should be performed; or, if this be impossible, an anastomosis should be established. If resection is impossible, or seems contra-indicated by the debilitated condition of the patient, an anastomosis should be established. If the carcinomatous disease be circumscribed and not generalized or disseminated, and resection and enterorrhaphy or anastomosis in one sitting appears too tedious or too dangerous, enterorrhaphy or anastomosis, excluding the tumor from the abdominal cavity, may be first performed, and as the condition of the patient improves, the growth may be extirpated. In favorable cases resection of the carcinomatous cecum and primary enterorrhaphy may be followed by curative results, lasting for years, as indicated by the general condition of the patient and the functional activity of the bowel.

Eclampsia.—OLSHAUSEN (*Sammlung d. klin. Vorträge*, No. 39, 1892) considers eclampsia an intoxication, dependent upon interference with the function of the kidneys, usually acute. There is most frequently an acute or subacute change in the parenchyma of the kidney, less commonly chronic nephritis, with acute fatty degeneration. Exceptionally, such conditions as compression of the ureter or intoxication by corrosive sublimate or carbolic acid are present. If the eclamptic attack cease without interrupting the pregnancy, the convulsions are almost never repeated at the time of birth. It has not been determined whether or not this is dependent upon the death of the child. The prognosis is governed by the possibility of speedily terminating the labor and by the number and violence of the attacks. A poor pulse and a high temperature are of unfavorable prognosis. True puerperal eclampsia, setting in soon after labor, is less dangerous than eclampsia setting in late. Attacks are sometimes preceded by auræ, consciousness not being entirely lost. Albuminuria is rarely absent. Morphine, in large doses, is indicated; but if contra-indicated by small pulse and contracted pupils, chloral should be given by enema. In the case of a multipara, the amnial sac is to be ruptured as early as possible, to induce or to inaugurate labor. As soon as the cervix offers no obstruction, the forceps is to be applied. Version and incision of the cervix are to be sparingly employed. In an exceptional case, in the interest of the mother, or, if the parent be moribund, in the interest of the child, Cæsarean section may be indicated.—*Centralblatt für die gesammte Therapie*, 1892, x, 7, p. 426.

Gastrostomy for Stricture of the Esophagus in a Child of Four.—At a meeting of the Clinical Society of London, CHITTON (*Lancet*, 1892, 3588, p. 1244) reported the case of a girl, four years old, who, when seen, seven weeks after swallowing some caustic soda, was unable to swallow anything, while a bougie was arrested at a point six inches from the teeth. To secure absolute rest for the esophagus, the little patient was fed by nutrient enemata. At the expiration of two months, as no instrument could yet be passed, the esophagus was opened in the neck, in the hope of reaching the stricture. The obstruction was found, however, to be within the thorax. The wound was closed, and the first stage of gastrostomy undertaken by means of hare-lip pins. Five days later, the stomach was opened and the child was fed through the gastric fistula. After the lapse of five months, a small bougie was made to pass through the stricture, and after many months of varying success a No. 14 esophageal bougie was passed with ease. In the following year, this large bougie was passed about once a month, and the plug removed from the gastric opening, which was gradually made to close by application of the actual cautery. The girl was ultimately restored to perfect health, presenting herself every six weeks to have the bougie passed.

Sudden Death from the Presence of a Spool-worm in the Trachea.—HEUSSER (*Corresp.-bl. f. Schweizer Aerzte*, No. 14, p. 443) reports the case of a boy, eight years old, to whom he was hurriedly called on account of interference with respiration of sudden onset and for which no cause was evident. Death took place, and the autopsy revealed the presence of a spool-worm at the bifurcation of the trachea, and projecting for some

distance into one of the bronchi. The assumption is that the worm found its way into the pharynx, and thence was aspirated into the trachea.

The Renal Function in the Fetus.—RISSMAN (*Centralbl. f. Gynäkol.*, 1892, No. 26, p. 497) has reported the case of a unipara who gave birth to an eight months' male fetus that presented pes equinus and bilateral cryptorchismus. The child, which lived for four and a half hours, was in other respects well-developed, but there was entire absence of the kidneys and ureters. The bladder was small and presented a depression indicative of the point at which the ureter should have entered. Both testicles, with their adnexæ, lay in the false pelvis.

Unilateral Syringomyelia.—At a meeting of the French Society of Biology, DÉJERINE (*La Méd. Moderne*, No. 30, p. 489) reported the case of a man, fifty-five years old, who presented the symptoms of syringomyelia, confined, however, to one side of the body. The patient died of pneumonia, and the autopsy disclosed the existence of a gliomatous cavity involving the right side of the cord from the cervical region to the lumbar enlargement, with its maximum of development at the cervical enlargement.

Disorders of Speech in Paralysis Agitans.—ROSENBERG (*Berliner klin. Wochenschr.*, No. 31, 1892, p. 771) has reported a case of paralysis agitans in a man, sixty-two years old, in whom the disease had existed for thirty years, and who presented disturbances of both articulation and phonation, dependent on participation in the tremor of the muscles of the lips, cheeks, tongue, and palate, as well as of the vocal bands.

The Detection of Tubercle-bacilli in Sputum.—KAUFMANN (*Centralbl. f. Bakteriol. u. Parasitenk.*, Bd. xii, No. 4 u. 5, p. 142) has found that tubercle-bacilli contained in sputum spread upon cover-glasses, fixed and stained in the usual way, are not decolorized by exposure to boiling water for from one and a half to three minutes, while most other bacteria lose their color.

THERAPEUTIC NOTES.

Paraldehyde as a Diuretic.—In a case of senile arterial degeneration, with mental depression, restlessness, insomnia, and valvular disease of the heart, other hypnotics failing, SYSON (*Lancet*, No. 3595, p. 195) employed paraldehyde, both in full medicinal doses and in small doses repeated at short intervals. Restlessness and sleeplessness were in a satisfactory degree controlled; in addition, a distinct diuretic effect was observed, intercurrent dropsy being relieved.

For Hemorrhoids.—

℞.—Morphinæ . . . . . gr. v.
Hydrarg. chlor. mit. . . . ʒj.
Glycerin. . . . . ʒiv.
Bismuth subnitrat. } . . āā ʒjss.
Vaselin. }
M. et ft. unguent.
S.—Apply topically. ALLINGHAM.

Hydrastis Canadensis for the Vomiting of Pregnancy.—FÉRODOW, a Russian gynecologist, has controlled obstinate vomiting in four cases of pregnancy by the administration of twenty drops of fluid extract of hydrastis four times a day. The efficacy of the remedy is said to depend upon a lowering of the blood-pressure, relieving the engorgement of the uterus, and upon a sedative influence upon the motor nervous centers and the gastro-intestinal canal.—*Gazette Méd. de Paris; Lyon Médical*, No. 31, p. 483.

For Hay-fever.—

℞.—Morphinæ sulphat. . . . gr. ss.
Cocaine hydrochlor. . . . gr. j.
Menthol. . . . . gr. iij.
Bismuthi carbonat. . . . gr. viij.
M. et ft. pulv.
S. Use as a snuff.
WELFORD, *Canadian Practitioner.*

The Removal of Deposits of Pigment in the Skin.—GÖNNER (*Correspondenzbl. f. Schweiz. Aertze*, No. 14, p. 462) states that pigment-hypertrophies can be removed by applying, at bedtime, a thin layer of soft soap, which is removed in the morning. In the course of a few days the skin peels off, and the deposit of pigment has disappeared. If pain and redness occasion distress, borated or salicylated vaselin may be applied.

For Dysentery.—

℞.—Morphinæ sulphat. . . . gr. j.
Magnesii sulphat. . . . . ʒj.
Acid. sulphuric. dil. . . . fʒij.
Aquæ . . . . . fʒiv.—M.
S. A tablespoonful every three hours.
BARTHOLOW.

The Treatment of Rabies.—TIZZONI and CENTANNI (*Deutsche medicin. Wochenschr.*, No. 31, p. 702) have, by precipitation with alcohol, been able to obtain from the blood-serum of animals rendered immune to rabies, a body that, dissolved in water, is also capable not only of conferring immunity, but also of effecting a cure when the disease is already developed.

For Itching.—

℞.—Menthol. . . . . gr. xij.
Alcohol. . . . . ʒjss.
Aquæ . . . . . ʒiij.
Acid. acetic. . . . . ʒj.—M.
S. Apply by means of a sponge.
—*Rev. de Thér. et Méd.-chir.*

For Gonorrhea.—MANGANOTTI recommends from three to five injections daily of from a three to a five per cent. solution of ichthyol in the treatment of gonorrhea.—*Correspondenzbl. f. Schweiz. Aerzte.*

For Fissured Nipples.—It is recommended that egg-albumen be applied to fissured nipples after nursing, and be permitted to dry, and be again moistened before the child is put to the breast.—VAN ALLEN.

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A WEEKLY JOURNAL

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SATURDAY, SEPTEMBER 3, 1892.

CHOLERA.

IT cannot be doubted that the present danger of a visitation of cholera to this country is greater than has existed for many years. The most recent reports may be exaggerated, and some deductions must surely be made for the extremely hot weather that has prevailed in western Europe; but the existence of the disease in three of the most important ports for passenger-embarkation places this country in far more direct communication than if the epidemic were limited to eastern or southeastern Europe.

All of the methods of transmission of the disease are not known, but it seems certain that persons and personal effects of immigrants from infected localities are likely to convey it. No evidence is at hand to indicate that ordinary merchandise is dangerous. The iron ore, chalk, clay, glassware, and other articles that we receive from Europe cannot be suspected. Even baled old rags, which have been so much condemned, have never been known to convey the contagion, although the opinions of some sanitary authorities have led to a different view among the people.

In an epidemic of this character, the quarantine-service of the various ports is naturally looked to for protection. On every occasion of the appearance of the disease in Europe, an overhauling of these coast-defences has been made, and much occupation has been given to the newspaper reporter in the description of the appliances for inspection and disinfection. Since the outbreak of the last epidemic in this country, about twenty-five years ago, a vast advance has been made in the knowledge of contagious diseases and in the efficiency of disinfectants. Inventive genius has supplemented theoretic knowledge, and apparatus, rapid, efficient, and economic, is now available. The application of steam in a closed space seems to be the best method that will accomplish disinfection with the least injury to the articles, a point that should by no means be left out of consideration.

The health authorities of the Atlantic seaboard are mostly well prepared to deal with the emergency, and while in some ports the facilities for handling and discharging baggage are such that considerable delay will occur, this will not impair the efficiency of the work. Fortunately, cholera is a disease of a characteristic nature, so that actual cases cannot escape detection.

If we except the advantage gained by a more accurate knowledge of the value of special disinfectants, it must be confessed that as regards the limitation of cholera epidemics we are to-day not in much better position than in former visitations. Isolation, general sanitary precautions, disinfection of clothing and discharges will be the principal means to be employed. Intelligent communities will not be likely to rely on tar oils or the aromatic disinfectants, but will employ those that are known to be efficient; and in this connection it may be well to point out that experiment has shown the value of slaked lime as a germicide, and that even strong brine has considerable effect. The former may be used freely, without danger, and is cheap and easily applied. It will probably be of service in the disinfection of discharges.

Without entering on the still somewhat disputed question of the causal relation of the so-called comma bacillus, it may be affirmed that drinking-water is an easy and frequent channel for the extension of a local epidemic, and that in many American cities so little attention has been paid to protecting streams from sewage-pollution, or providing means for the purification of such sources of supply, that serious danger arises from the possibility of introduction of the germs at the upper points on streams

and their subsequent entrance into the water-supply at places further down.

The contamination of the milk-supply is also a danger. The sterilization of all milk is a duty in every household, more especially as this, so far as the comma-bacillus is concerned, is easily brought about. This organism is one of the most sensitive known. According to FRAENKEL, it is killed by temperatures above 120° F. It perishes quickly when dried, and also when associated with large numbers of ordinary water bacteria. To this region and climate it is essentially an exotic plant, and it would seem not difficult to restrict its admission and extension within narrow limits.

We may expect that in the excitement of the moment some unnecessary steps will be taken and some injustice done to commerce and trade, but the medical and sanitary knowledge and methods of the people of the United States will doubtless be found fully able to prevent any serious result.

PROGRESS AND REGRESS IN MATERIA MEDICA.

THE distinct and clearly defined danger that the medical profession runs from the persistent influence of commercial manufacturers of secret preparations is exactly analogized by the pernicious influence of the "patent medicine" syndicates in the drug-business. THE MEDICAL NEWS is clearly of the opinion that the non-medical manufacturer or discoverer of a new drug or therapeutic agent may legitimately patent his discovery, but may not copyright the name only, while keeping the constitution and method of preparation of the article secret. In this manner he will have a proper reward for his energy and outlay of capital. As a profession we allow this right to the unprofessional discoverer, but demand of our own members a still higher standard of morality, in tha we do not permit any physician either to patent a discovery or copyright the name of a proprietary article. This professional magnanimity to others, whilst strictly denying it to ourselves, is a clear evidence of our freedom from dogmatism or hobby-riding.

The profession, however, has a clear duty to perform as regards the action of manufacturers of secret preparations.[1] One by one these men, by fair means or foul, are getting greater and greater control of members of the profession, convincing them by arguments, good, bad, selfish, or corrupt, of the especial excellence of certain products, and dulling the sense of professional honor in making them overlook the fact that these preparations, however cunningly the fact is sought to be hidden, are secret nostrums. Some of these nostrums are, perhaps, excellent preparations, but the secrecy of their origin, nature, or method of preparation throws them out of the armamentarium of the honorable physician, because the physician must have knowledge of what he is using, and guarantees, through his ability to test the preparation, that its composition will always remain identical.

The U. S. Pharmacopeia will not admit secret preparations, because the very purpose of the Pharmacopeia is to establish a standard of strength and purity, and obviously there can be no standard when secrecy is permitted. Pharmacists and physicians thus unite in condemning secrecy concerning medicinal preparations for the reasons given, and in addition because of the fact that only by secrecy can worthless and vicious compounds be pushed upon us.

One by one medical journals have given way under the threat or the bribe of valuable advertisements, or of special orders for thousands of an issue containing an article, and in many of the best and all of the worst there constantly appear articles in praise of these preparations, and in almost none are there manly and frank condemnation of these things. It remains for the medical profession to clearly determine whether it shall have independent and truly professional journals, or whether they shall be the secret or half-secret slaves of the manufacturers of secret preparations.

We are glad to know that this position of THE MEDICAL NEWS is that unanimously endorsed by the PHILADELPHIA COUNTY MEDICAL SOCIETY, the PENNSYLVANIA STATE MEDICAL SOCIETY, the MISSOURI STATE MEDICAL SOCIETY, the AMERICAN MEDICAL ASSOCIATION, and the AMERICAN PHARMACEUTICAL ASSOCIATION.

One thing is clear. It is not necessary to make secret preparations in order to make money; it is not necessary to fly in the face of medical tradition and medical honor to succeed in a purely commercial sense in the pharmaceutical business. This has been demonstrated by the conduct of a number of firms. Moreover, such firms as these conceive it to be good policy as well as duty to aid the medical

[1] A secret preparation is one "of which no working formula is or will be published."

profession instead of coercing it. When a firm, while refusing to make secret preparations, has the largeness of character and nobility of purpose to spend money like water to push original pharmacologic investigations into new fields, to buy splendid books, issue good periodicals, outfit research laboratories, publish exhaustive and expensive works, bulletins, and reports, the weary physician will turn with gladness to such men as his friends rather than to those who, doing nothing for the work of his life, seek to make him a commercial sales-agent for products of unknown constitution.

REVIEWS.

PRACTICAL MEDICAL THERAPY: A BOOK FOR THE FAMILY, THE PHYSICIAN, AND THE DRUGGIST. A POPULAR TREATISE ON THE PREVENTION AND CURE OF DISEASES, AND THE USE AND ABUSE OF MEDICINES. Embracing the Essential Principles of Medical Practice in Accord with the Latest Scientific Research and the Most Advanced Medical Treatment; Setting Forth the Correct and Intrinsic Values of Drugs and Medicines as Curative Agents, and Telling How to Save Life, Health, Time, and Money in their Use; to Which is Added a Great Variety of Valuable Formulas for Medicinal, Toilet and Household Purposes, Receipts for Disinfectants, Insecticides, Hygienic Measures, etc. By JOSEPH A. CONWELL, M.D., Physician and Druggist. Sold by subscription only. Vineland, N. J.: The Conwell Publishing Co., 1892.

THIS book contains so much that is good, pertinent, timely, that it is with profound regret that we find ourselves compelled to say that it contains likewise much that is not good, not pertinent, not timely. Repelled by the pompous pretentiousness of the title-page, we were delightfully surprised to find, in Part I, a series of well-written, concise, sensible essays upon the place and scope of medicine, the merits and demerits of the "pathies," the relations and reciprocal duties of the family physician and his patients, the functions of specialism and specialists, the nature of worthy and unworthy medical practice, the schemes and methods of medical frauds, patent and secret medicines, quack-doctors, and the like. Chapters on unnecessary medicine, imaginary diseases, and popular errors, likewise deserve special commendatory mention. We wish the author had here written Finis, or that he would print a special edition, consisting of this part of the book and the household recipes only. We would then advise physicians generally to see that their patients bought the book. It would do good. Part II gives concise statements concerning "the nature, cause, symptoms, prevention, and cure" of various disorders, arranged alphabetically. These brief statements are of slight value to the physician, and while a few contain useful directions for emergencies, as a whole, this part of the work can only do harm to the lay reader who may attempt to act on its direction, without medical advice. It contains a few lamentable misstatements, such as that concerning tracheotomy in croup, which may be prejudicial. Had the articles been confined to the proper hygienic and prophylactic measures to be adopted under certain circumstances, Part II might have been worthy of Part I, but these matters are not given with anything like sufficient fulness. We trust the author will rewrite the articles from a purely popular standpoint. He has failed only because he has attempted the impossible—to combine popular and technical treatment of his theme in one article. Part III, on Materia Medica and Therapeutics, is more useful, and might, with a little alteration, be allowed to stand for popular information in a new edition. We repeat our regret upon the necessity of making any unfavorable comment upon this book.

We have only commendation for the spirit in which the work has been undertaken, for the lucidity and brevity of its style, and for the matter of that part of it properly belonging in a popular treatise. We doubt not the author has the knowledge and ability to write an acceptable compendium of practice for physicians, but this should be a separate work.

THE WIFE AND MOTHER: A MEDICAL GUIDE TO THE CARE OF HER HEALTH AND THE MANAGEMENT OF HER CHILDREN. By ALBERT WESTLAND, M.A., M.D., C.M. 8vo, pp. xiv, 282. Philadelphia: P. Blakiston, Son & Co., 1892.

A NOTICEABLE point about this little volume is the commendable absence of technical terms, as the author plainly states that it is for the use of "women who are desirous of fulfilling their proper duties of wives and mothers." Too often, in works of this class, the readers for whom they are intended are confused and led astray by the multiplicity of words and phrases meant rather for the practitioner than for the mother.

The book is divided into four parts. The first part treats largely of pregnancy and its complications, and gives some sound advice to those about to marry; it *explains* in a lucid manner the symptoms of approaching motherhood. Several chapters are devoted to parturition and its concomitants.

The second part considers the puerperal state and the relations of mother and infant. The third part takes up the greatest portion of the volume. The care of the child during early infancy is intelligently and fully considered, together with the ills to which it is liable. This part of the work, however, would be the better for a properly-arranged diet-list for the child after it has ceased taking nourishment from the mother.

Part four deals with the menopause. There is an appendix, containing the law relating to registration of births in the United Kingdom, the law relating to vaccination of children, and the law relating to notification of infectious diseases, and there is a well-arranged index.

Altogether the book fulfils the objects for which it was written, and will materially assist the young married woman in the intelligent performance of her new duties.

The Tri-State Medical Association of Alabama, Georgia, and Tennessee will hold its fourth annual meeting at Chattanooga, October 25, 26, and 27, 1892. Quite an interesting scientific program has been arranged.

CORRESPONDENCE.

SOUND AS A THERAPEUTIC AGENT IN DEAFNESS AND TINNITUS AURIUM.

To the Editor of THE MEDICAL NEWS,

SIR: "The man that once did sell the lion's skin while the beast lived, was killed with hunting him."

The attention of the profession was called to the beginning of my labors in the employment of sound as a therapeutic agent in papers presented to the College of Physicians of Philadelphia, April 6, 1887, and to the American Otological Society at its meeting, New London, Conn., July 19, 1887, and by publications as follows: "The Sphenoid Bone; Some of its Possible Functions," *New York Medical Journal*, August 11, 1888; "A Study in Physiological Acoustics: Preliminary Notice," *New York Medical Record*, November 17, 1888; a presentation of results in typical cases entitled, "Otacoustic Treatment in Chronic Deafness," *Annals of Opthalmology and Otology*, January, 1892.

During the month of November, 1891, there appeared at times articles in the lay press entitled "New Way to Cure Deafness;" "Sound Waves in the Treatment of Aural Diseases," by Henry F. Garey, Professor of Otology in the Southern Homeopathic College, Baltimore, Md. The ambiguous phrasing of said publications I considered an injustice to me for two reasons:

1st. That Garey came to Washington on December 17, 1890, with F. C. Drane, dean of said college, to be treated by me.

2d. He had applied *similia similibus curantur* to sound, and with this only and a knowledge derived from me, attempted to deceive the public through said publications by attempting to pose as the discoverer of sound as a therapeutic agent in deafness and tinnitus aurium.

I therefore addressed to the faculty of said college through its registrar a protest against this assumption of Garey, and received a reply substantially sustaining Garey, whereupon I issued a pamphlet giving all the facts, and addressed a copy to each member of The Institute of Homeopathy at their meeting, Washington, D. C., June 13, 1892. No notice was taken of my protests against Garey's attempts at deception, although Garey in his address before that body on "Massage of the Sound-conducting Apparatus of the Ear," said, "Massage of the sound-conducting apparatus of the ear has been used by me experimentally ever since the opening of the clinics at the Southern Homeopathic College in 1891. For several years past it has been settled in my mind theoretically that if it were practically applied it would prove such an adjunct to those cases of adhesions of the 'membrani tympania' and 'anchylosios' (quotations as printed in report; see Baltimore *Sun*, June 15, 1892) of the ossicles, conditions which it has almost been impossible to obtain from the past."

In the paper he gives his date as 1891 (the college opened in the fall of 1891, one year after his visit with Drane for treatment at my hands for deafness by "massage of the sound-conducting apparatus of the ear," or, as I have termed it since 1887, "otacoustic treatment").

In view of the steps taken by me to present the facts in this case, not only to the college of whose faculty Garey is a member, but the presentation by pamphlet to the yearly meeting of this school of medicine, known as the National Homeopathic Institute, they on the day of adjournment (June 17, 1892), through their "Senate of Seniors," which seems to preside over and decide upon ethical questions, made this report:

"We give notice to all concerned that violations of our code of ethics must not be allowed to pass unnoticed if medical associations are to be worth anything. And we would request our medical journals to make known the provisions of the code, so that our physicians may not err ignorantly."

And thus they teach; how different their practice!

J. A. MALONEY, M.D.

1424 Q ST., N. W., WASHINGTON, D.C.

THE EVIL OF THE NOSTRUM.

To the Editor of THE MEDICAL NEWS,

SIR: The letter of Dr. Slifer in the August 13th issue of THE MEDICAL NEWS, on the pernicious effects of testimonials advertising secret and proprietary medicines, brings to mind another form of advertising in which the testimonial does not accompany the package containing the drug, but is sent broadcast in the form of a circular or letter, which usually consists of a fulsome indorsement of the preparation, and winds up with the signature of the indorser, to which are appended his titles, usually with the further fact that he is Professor of Cystoscopy and Prostatitis in the Podunk Medical College. It is evident that the *quid pro quo* in these cases is the advertising that the specialist obtains in having his name brought before the profession. The evil of it all is that preparations of little or no merit are thus foisted upon an unsuspecting medical public. Undoubtedly indorsements have been and are now occasionally given that express honest opinions, but the vast majority of them but thinly veneer the despicable methods of the sneak advertiser.

The profession of this city has recently received a circular letter advertising a proprietary medicine, which, if the assertions of the indorser are true, is deserving of a unique position in our materia medica. We give the circular in full, omitting, of course, the name of the writer and the drug:

"MAY 17, 1892.

"I reiterate my assertion made nearly a year ago, and am daily prescribing ——— with happiest effects.

"In my practice it accompanies the maid from her virgin couch to her lying-in chamber, assuaging the perplexities of maidenhood and easing the trials of maternity with most gratifying results.

"I earnestly hope that the proprietors of this valuable remedial agent will keep it up to its present standard of purity and excellence. ——— ——— M.D."

The foregoing letter is apparently free from the methods of the surreptitious advertiser; at least nothing is apparently gained by the writer more than the slight tickling of personal vanity found in the wide circulation of an autograph letter.

A drug that can accompany a maid from a virgin couch to a lying-in chamber is certainly not devoid of power, and it should evidently be prescribed to young unmarried females with great caution. An ecbolic action

is hinted at when we are told of its "assuaging the perplexities of maidenhood and easing the trials of maternity," but we are left painfully in doubt by the concluding words of this sentence: "with most gratifying results." Whether "results" here refers to the maidenhood and maternity that have been assuaged and eased, or whether it relates to successes on other lines, is uncertain. Possibly diseases of men may be included within the curative range of this marvelous drug.

The letter concludes with a hope—born possibly of misplaced confidence—that the proprietors will keep the drug up to its present standard of excellence and purity. After the manner of some they shall not go on assuaging and easing until they have established a reputation, and then suddenly debase their products, thereby filling their coffers with much gold.

We too may be forgiven the pious hope that they will continue to assuage and ease, but we are doubtful of the propriety of accompanying a maid from a virgin couch to a lying-in chamber. We are of the opinion that she ought to follow much of this journey alone, or with only such assistants as the conditions of the case require. To intrude under such circumstances would suggest immodesty, even in the vender of a proprietary medicine. At the risk of being considered old-fashioned and puritanical, we certainly think that "accompanying," in the sense used in this indorsement, ought not to be permitted. Respectfully, MEDICUS.

CHICAGO, ILL.

RÖTHELN.

To the Editor of THE MEDICAL NEWS,

SIR: It was with interest that I took up the NEWS of July 30th and read your editorial on "The Differential Diagnosis of Rötheln, Measles, and Scarlatina." It was timely, inasmuch as epidemics of German measles are becoming common; and hence it is essential that the physician be prepared to recognize the disease when called to a case, particularly as it is acknowledged by recent writers of authority to be a specific, infectious, and highly contagious disease. To one who has not seen the disease in its various phases, a case of German measles may be difficult of recognition. In view of these facts, and with a desire to impart what information I have on the subject, and to emphasize what has already been said, I am led to report an epidemic that made its appearance in our midst during the latter part of last spring. Quite a number of cases came under my observation. Some were seen during the active stage of the disease, and others after this had passed. Upon inquiry, it was learned that the character of the malady was thought to be so mild by the parents that the services of a physician were considered unnecessary; consequently when, as health-officer, my attention was called to the cases, they were found to be without medical supervision.

The disease was confined to the children of four families in the same immediate neighborhood, with the exception of two cases. The parents of two or three of the afflicted families said that their children had been neighboring with a little girl in the vicinity who had a *breaking out*, and that they had *caught* the disease. To quote the remark of one little girl, she said to another: "I'm going to kiss you and give you the disease." To the children the so-called disease was a rash, making its appearance suddenly in the midst of apparent health, and, except in two or three cases, was followed by no untoward symptoms, the little patients keeping up all day, eating and sleeping without any apparent discomfort.

The eruption was upon the face, chest, and trunk chiefly, the extremities sharing lightly in it. So far as our observation extended, the face was the most common seat. The exanthem was most diverse in character. It varied between spots of a light-purplish hue and large blotches, some irregular in shape, others round; and, when abundant, with a tendency to coalesce, a flushed condition appeared. This was more manifest and characteristic upon the face than upon any other part of the affected surfaces. The next favorite seat was the chest. In some of the cases the fading of the rash was followed by a free branny or furfuraceous exfoliation; in others there was no desquamation.

In addition to the eruption the more indisposed had a slight rise of temperature; moderate angina; coryza, more or less pronounced; and decided induration and swelling of the lymphatic glands of the neck, and chiefly those of the anterior chains. The tongue presented a whitish coat.

In no instance was there an unpleasant sequel. There was one relapse; the case assumed its original phase, though the symptoms were somewhat intensified; speedy recovery ensued.

In this epidemic there were no fatal cases. The spread of the disease was prevented by strict quarantine.

L. P. WARRINGTON, M.D.,

CHARITON, IA.

INTOLERANCE TO POTASSIUM IODIDE.

To the Editor of THE MEDICAL NEWS,

SIR: THE NEWS of July 16th contains the report of a case of "Intolerance to Potassium Iodide," by Dr. J. T. Bringier, of Burnside, La.

It has seemed that such cases are of rare occurrence. I will relate my personal experience with the drug, which is more striking than in the case reported. During my school days I suffered with asthenopia, following an attack of measles. Various remedies having been tried without relief, it was decided to try potassium iodide, a then comparatively new therapeutic agent that was being vaunted as a panacea for all the ills to which flesh is heir. The prescribed dose contained about five grains of the salt. After the second dose, coryza set in and became more intense as I persisted in the continuance of the drug, so that a handkerchief would be saturated in a short time. There was pain across the bridge of the nose, as if it were placed in a vise and gradually compressed. Profuse lachrymation occurred, with a severe itching pain in the orbits, pain and ringing in the ears, and a feeling of pressure in the temporal regions. There was also profuse salivation, with congestion of the fauces, pharynx, and larynx. The involvement of the larynx was so profound as to embarrass respiration. It seemed that there was not a bone or joint in my body that did not share in the pain.

The acme was reached on the second night after commencing the ingestion of the drug (which was persisted

in), when it seemed that I suffered the torments of the damned. Sleep was out of the question. By morning the symptoms rapidly ameliorated, and, faithful to my charge, I consumed the four-ounce mixture, but there was no visible improvement of the asthenopia. On another occasion, following the ingestion of two or three three-grain doses of the drug at night, I was aroused from sleep and was obliged to arise to avert threatened suffocation. To the present day I manifest the same or even greater intolerance to the drug.

In my practice I have met with but one marked case of intolerance to potassium iodide.

F. P. BRUNTHAVER, M.D.

DOWLING, OHIO.

OPHTHALMIA NEONATORUM.

To the Editor of THE MEDICAL NEWS,

SIR: The article entitled "A Method of Infection, Treatment, and Prophylaxis of Ophthalmia Neonatorum," in THE NEWS of June 11, 1892, recalls an experience that I had while house-surgeon at Kings County Hospital in 1858.

Purulent ophthalmia broke out in the nursery building, a few hundred yards from the hospital. There were about fifty children inmates, most of whom contracted the disease, notwithstanding the employment of such precautions as were then known and available. The danger of infection from nasal discharges was a number of times demonstrated by accident. It was our practice to have the child held in the lap of the nurse, who also held its hands, while the physician grasped its head between his knees, controlled the eyelids with his left hand, and made the application with his right. Before releasing the child, or during the act, he (or she) would sneeze and blow the virus directly from its nostrils into the eyes of the nurse. In treating one refractory patient the nurse and myself each had an eye inoculated by a sneeze, each feeling the spray touch one eye at the same time. Both of us had the other eye diseased a few days later. The nurse became totally blind in the inoculated eye. I was confined in a dark room for several weeks, and did not recover the full use of my eyes for six or eight months, and have required occasional treatment for granular lids up to the present time.

The local treatment consisted mostly of solutions of silver nitrate, applied with a camel's hair brush, the strength varying from five to thirty grains to an ounce of distilled water. The standard strength, I believe, was ten grains to an ounce. One personal recollection I have was tasting the silver nitrate on the pharyngeal surface of my soft palate soon after its application to my eyelids. A number of times I had pencils of pure silver nitrate applied to my granular lids.

Yours, respectfully,

N. W. LEIGHTON, M. D.

BROOKLYN, N. Y.

NEWS ITEMS.

The Vermont State Medical Society will hold its seventy-ninth annual meeting at Montpelier, October 13 and 14, 1892. The following list of papers has already been secured:

The President's Annual Address, by Dr. C. S. Caverly, Rutland.

"Placenta Previa," by Dr. D. G. Kemp, Montpelier; discussion opened by Dr. C. C. Perry, West Rutland.

"An Analysis of Dosimetry, by Dr. C. W. Strobell, Rutland; discussion opened by Dr. W. H. Vincent, Orwell.

"Cholera Infantum," by Dr. A. E. Moody, Isle La Motte; discussion opened by Dr. George Davenport and Dr. E. Randolph.

"Uric Acid and Urea, Analysis and Significance of," by Dr. George B. Nichols, Barre; discussion opened by Dr. C. W. Peck, Brandon.

"The Influenza as Observed by Me in the Epidemic of 1891–92," by Dr. S. T. Brooks, St. Johnsbury; discussion opened by Dr. M. R. Crain, Rutland.

"Treatment of Minor Injuries to Workmen," by Dr. C. B. Ross, W. Rutland; discussion opened by Dr. C. E. Chandler, Montpelier.

"Some of the Medical Delusions of the Past and Present," by Dr. Edw. R. Campbell, Bellows Falls; discussion opened by Dr. H. A. Crandall, Burlington.

"Injuries to the Intestinal Canal, and their Various Modes of Treatment," by Dr. E. M. Pond, Rutland; discussion opened by Dr. J. N. Jenne, St. Albans.

"McBurney's Operation for Radical Cure of Hernia, with presentation of a case," by Dr. William F. Hazelton, Springfield; discussion opened by Dr. H. Janes, Waterbury.

"Neurasthenia," by Dr. A. J. Willard, Burlington; discussion opened by Dr. H. R. Wilder, Swanton.

"Diphtheria—Cause, Prevention, and Treatment," by Dr. F. R. Stoddard, Shelburne; discussion opened by Dr. C. F. Branch, Newport.

"The Insane Diathesis," by Dr. J. M. Clarke, Burlington; discussion opened by Dr. D. D. Grout, Waterbury.

"The Use of the Curette in Uterine Surgery," by Dr. Albert Vander Veer, Albany, N. Y.; discussion opened by Dr. L. M. Bingham, Burlington.

Paper (title to be announced) by Dr. B. J. Andrews, Burlington.

"Obituary of S. S. Clark, M.D.," by Dr. George Dunsmore, St. Albans.

"Obituary of Joseph Draper, M.D.," by Dr. H. D. Holton, Brattleboro.

The Executive Committee has decided to offer a cash prize of twenty-five dollars for the best original contribution on either of the following subjects: "Summer Diarrhea in Children" or "Treatment of Lobar Pneumonia," by a member of the Society. Papers shall not exceed 1500 words in length, and should be sent to the secretary, Dr. D. C. Hawley, Burlington, Vt., on or before September 15th.

Dr. Irving A. Watson, of Concord, N. H., will probably be present and read a paper on some sanitary subject.

BOOKS AND PAMPHLETS RECEIVED.

Remarks on the Nature and Treatment of Tuberculosis. By E. L. Shurly, M.D. Reprint, 1892.

Camphor-menthol in Catarrhal Diseases. By Seth Scott Bishop, M.D. Reprint, 1892.

Report of the Friends' Asylum for the Insane, 1892. Philadelphia: G. H. Buchanan & Co., 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, SEPTEMBER 10, 1892. NO. 11.

ORIGINAL ARTICLES.

THE NATIONAL GOVERNMENT SHOULD HAVE SUPREME CONTROL OF QUARANTINE AT ALL FRONTIERS.

BY E. O. SHAKESPEARE, M.D.,
OF PHILADELPHIA, PA.

IN discussing the importance of "What the State Can Do to Prevent Cholera," the recent Surgeon-General of India, J. N. Cunningham, M.D., very justly states that "the questions involved are questions of vast interest, not only to the people of India, but to the people of all countries. They involve the health and happiness of millions of homes in all parts of the world."

We have only to recall the immense losses that have been entailed upon most of the civilized and uncivilized nations of the world through the invasions of this disease to appreciate the great practical value which the solution of this question may have.[1] In India, where cholera rages constantly from year to year, the Sanitary Reports of the Indian Government for the eleven years preceding and inclusive of 1884 show that, during that period, the deaths from cholera in that country amounted to not less than three and a quarter millions, in round numbers.

In referring to the ravages of the epidemics of cholera in Europe, it is not necessary to summarize the detailed losses that have occurred since the first visitation by cholera in 1831, but attention may be called in this connection to the extent of the damage done by the epidemic previous to the present one. In 1883, Egypt is said to have lost 60,000 lives from cholera, and it is estimated that in 1884 and 1885 Italy and France together lost in the neighborhood of 60,000 inhabitants from the disease; to these numbers should be added the loss that Italy suffered during the years 1886 and 1887 from the same cause. The loss of life in Austria-Hungary has also been considerable. Spain, however, was the greatest sufferer from the ravages of cholera during that epidemic. Among a population of 16,000,000 there were, according to the official reports (which, no doubt, are short of the reality), 119,620 deaths from cholera. The records of the present epidemic, so far as we learn, show that the mortality in Russia, in Persia, and in India has been quite as severe as in the worst epidemics that these countries have previously suffered. For example, we are informed that the loss to Russia alone from this cause in the present year has already amounted to 150,000 lives, and yet there is very little indication that the epidemic has passed its acme. Before the end of this season in that country, in all human probability, the deaths from cholera alone will mount to upward of 200,000. Judging from the history of previous epidemics in Russia, in all probability the next year will witness a sacrifice of even more lives than have been destroyed during the present season there.

When one undertakes to estimate the loss to a country of the intrinsic value only of the lives destroyed, the amount, though great, must seem insignificant when compared with the loss of incalculable millions of treasure due to the paralysis of industry and commerce. Political economists in Europe have variously estimated the value to the State of a human life. It may be said that the average estimate places this at one thousand dollars per capita. Calculating upon this factor, we see that a destruction of value in Europe, represented in human lives sacrificed during the epidemic previous to the present one, has amounted to two hundred and fifty millions of dollars. Estimating the value to the State of human life in India, which, let us say, is one-tenth of that amount—that is, one hundred dollars per capita—we find that India has suffered a loss from this source alone, during the eleven years mentioned, of three hundred and twenty-eight millions, five hundred and sixty thousand dollars. No doubt political economists in America would estimate the value to the State of the average human life as greater than the sum named per head, and if we regard the statistics of death by cholera in former epidemics in the United States, we can readily perceive the enormous national loss that has been due to this cause. So that when Surgeon-General Cunningham, in discussing the subject of what the State can do to prevent cholera, purely from the practical standpoint, and speaking of the theories at present entertained or that have been entertained at various times by scientific bodies concerning the nature of the disease, says, "Whether these theories are scientifically correct or not is a matter of very minor importance,"

[1] Much of the facts and language in this connection have appeared elsewhere; in the main, in my "Report on Cholera in Europe and India," published by the Government Printing Office, 1890.

he can scarcely expect that many familiar with the history of the ravages of cholera in parts of the world outside of Hindostan can agree with him.

In view of the enormous interest the State (that is, the Nation) has in the prevention of the injuries that follow the uninterrupted spread of a wide and devastating epidemic of any kind, and particularly of cholera, I propose to discuss from this standpoint the question of national supremacy in the control of quarantine at all frontiers.

In the first place, regarding the estimation of the loss by the State in the destruction of human life alone occasioned by cholera epidemics, it can be readily understood that the loss to the public occasioned by a single widespread epidemic of cholera, or even of yellow fever or smallpox, is far greater than would be the cost of the proper maintenance for many years of a perfect quarantine establishment at all our ports. In the case of Asiatic cholera especially, but also in that of scarlet fever or smallpox in a lesser degree only, the relation of the enormous emigration from Europe into this country, as bearing upon the introduction of epidemic diseases here and their rapid dissemination throughout the land, should be closely considered. It cannot be denied that the entrance of the thousands of emigrants who annually reach our country after starting from or passing through localities infected with contagious diseases, frequently in their persons and in their pestiferous clothing carry with them often as far as their ultimate destination, and let loose there the active germs of these diseases; and the herding of these emigrants into the miserably ventilated and frightfully unsanitary quarters usually provided for steerage passengers on the trans-Atlantic steamships, the modern rapidity of ocean and land travel, and the great facility with which these swarms of people are so soon distributed all over our country, combine to multiply the danger to the public health, with which, in the laxity of our laws and the unsatisfactory administration of them, these incessant influxes constantly menace the country.

In their enormous numbers, their poverty and their squalor, and in their mode of transportation of all sorts of infections and contagions, these emigrants can be likened only to the Oriental pilgrims, in whose track pestilence has so frequently followed. It is, indeed, with the extremest rarity that smallpox or cholera has, in modern times, been introduced into North America by any travellers other than the immigrant class. To take the proper means to guard the ports of entrance against the infected persons and baggage of cholera emigrants would probably keep cholera from our midst; to do the same with smallpox emigrants, with the addition of compulsory vaccination and disinfection of personal effects, as an invariable condition precedent to the privilege of landing, would go far toward banishing that scourge from the land; and the importation of scarlet fever, diphtheria, and like diseases might likewise be prevented by similar adequate measures. The past history of cholera and a study of the mode of its spread during the present epidemic (in which its movement from east to west has been unprecedentedly rapid) shows that the main conveyors of the infection have been, this year, as in all previous times, the persons and personal effects of emigrants, pilgrims, or large masses of soldiers.

In 1887, when cholera reached the quarantine station at New York, it was brought there by emigrants direct from the port of Naples, where cholera was then raging. The introduction into South America, in 1886, of the seeds of cholera, and the widespread epidemic in Argentina, in Chile, and in neighboring countries, was due to the conveyance of the infection by an emigrant ship that sailed from Genoa at a time when cholera was present in that locality. Although examples of the conveyance of cholera in this manner might be multiplied almost indefinitely, it is unnecessary to more fully emphasize the well-known and indisputable fact that it is by the unrestricted movements of such people during the prevalence of an epidemic of Asiatic cholera that the disease has been conveyed from one country to another.

The establishment of quarantine has heretofore been the main means relied upon to prevent the introduction into any country threatened by the invasion of the seeds of this disease—and with varying results, according to the favorable situation of the given country with regard to the course of these infecting streams, and according to the hygienic condition of the threatened populations. Because of the inadequate quarantine establishments, oftentimes combined with exceedingly faulty administration, in the past, these methods of preventing an introduction have often necessarily failed, and the failure has (irrationally, to my mind) been ascribed, almost universally, to an impossibility of warding off cholera in this manner. In fact, the history of past epidemics is prolific in examples of complete protection of localities and of whole countries, when absolute non-intercourse has been adopted. In modern times, however, the serious damage done to trade by the adoption of such a sweeping policy has brought about an almost entire repudiation of absolute non-intercourse as a means of prevention. To my mind, in the case of the United States, so far distant from the source of cholera, and so remote from European shores, we need only to fear, during the prevalence of a widespread epidemic of cholera in the northern portion of Europe, the introduction

of the disease here through the numerous hordes of emigrants constantly arriving from Europe.

It is a fact beyond dispute, that cholera preys upon and breeds among those living in squalor and filth, and closely follows their movement. It is exceptional, even in Bengal, the home of cholera, that the Englishmen there are attacked by the disease. It is true, also, in filthy and frightfully unsanitary localities in Southern and Eastern Europe, that the intelligent and well-to-do classes suffer to no great extent during the period of a cholera epidemic. There is but little danger of the class of people who constitute the cabin passengers of the trans-Atlantic steamers bringing with them, either on their persons or in their clothing, the infection of cholera. It is for this reason that I hold most confidently that the chief and, I may say, the *only* source of danger of cholera finding a foothold, when inspection is properly performed at quarantine, lies in its introduction by the emigrant classes.

The establishment of a policy of non-intercourse, so far as emigration is concerned, during the times when Europe is suffering from a cholera epidemic, would, in my opinion, constitute the best, and perhaps the only means of safeguarding the general public from the ravages of this disease. I have repeatedly had occasion, in several publications and in communications to the medical and lay press upon this subject from time to time, to point out the dangerous state of imperfection, to my personal knowledge known to exist, in several of the Atlantic quarantine stations. The ports of Boston, Philadelphia, and Baltimore would certainly, in their establishments and in their limited corps of administration, be unable to cope successfully, for any long period, with an invasion through the emigrant classes who are allowed to come incessantly during periods of prevalence of cholera in Europe to our shores. Even the quarantine station at New York—which is the best, most completely equipped and best administered of all our quarantine stations—with the frequent arrival of trans-Atlantic steamers carrying infected emigrants, would quickly reach the safety-point of defence and be overwhelmed, unless we adopt the policy of long detention of travellers, ships, and cargoes—a policy which would involve a tremendous loss to those engaged in maritime trade or in any manner associated in a business way, directly or indirectly, with maritime commerce. The capacity of the New York quarantine station will be reached for purposes of safe defence with the landing of, say, one thousand infected emigrants. It can be readily seen how soon, with an uninterrupted stream of emigrants from infected localities, the capacity of this, our best quarantine station, would be taxed to the utmost.

In my opinion, the action of the President in attempting to suspend immigration, even in the indirect manner of enforcing quarantine of twenty days, is a wise procedure, and perhaps the only one that could be adopted under the present circumstances which would reasonably insure this country against an invasion of cholera. The placing of an embargo on immigration *only* would undoubtedly be the most direct means of accomplishing this desirable result, and would not be coupled with any harassing impediments to the course of trade, involved in the long detention of ships and cargoes, or harassing restrictions upon the movements of travellers who are but little likely to introduce the infection. It is needless to point out that with the ship's inhabitants limited to the crew and the cabin passengers, certainly the quarantine station of New York, in its present preparation, could be safely relied upon to guard the country against the introduction of cholera through that port. The present arrangements that have been adopted and placed in operation at the quarantine stations of Boston, Philadelphia, and Baltimore—imperfect as these are in establishment—would also be in no danger of being overwhelmed by the exigencies of the occasion. I regret to learn by the public press, however, that, while the authorities at the three latter quarantine stations have willingly acquiesced in the determination of the President, as expressed by the proclamation of a twenty-days' quarantine against all vessels carrying European emigrants, the quarantine physician in control of the port of New York has allowed himself to be prompted by a spirit of defiance, in claiming his right, under the laws of the State of New York, to entire independence of any national control, thereby assuming to nullify the efforts of the General Government to protect the general welfare. It is unfortunate for the country that the quarantine officer at the port of our metropolis, through which the vast majority of European emigrants pass, to spread widely through the whole of our country, should so lightly regard the duties and relations of a frontier quarantine officer to the safeguard of the United States and the welfare of the sixty-five millions of her inhabitants.

This example in itself affords sufficient reason for the establishment, by national legislation, under Congressional laws, of the supremacy of the nation in control of quarantine at all our frontiers for the safeguarding of the *national welfare*.

The ridiculously antiquated, obsolete, and inadequate permanent establishments at most of our maritime quarantine stations, and the apparent impossibility, except perhaps when confronted with emergencies such as the present, of obtaining appropriations from local authorities of sufficient sums of money for the erection of extensive and com-

plete quarantine establishments in accordance with modern science and accurate knowledge of the nature, mode of spread and means of prevention of cholera, are further and, to my mind, incontrovertible reasons why the general public cannot rely upon independent local quarantines for the defence of the whole country against the introduction of the common epidemic diseases, much less of epidemics of cholera.

In this connection the question may be very pertinently asked: "Why, then, should the direction, expense, and responsibility of a system of common defence against the inroads of foreign diseases, any more than against invasions of foreign foes, be assumed and borne by those municipalities or States that happen to have a maritime location? Why should the vast majority located inland be allowed to shift their responsibilities and obligations or be denied a voice in the direction of affairs which so closely concern them? The protection of the public health by maritime quarantine is a matter that interests not merely a narrow belt of sea-coast; it seriously concerns the whole of the vast territory between our shores.

In view of the foregoing considerations I would therefore uphold the following propositions:

A. *The present methods of independent quarantine provided and regulated by sea-board States or cities are essentially defective and insufficient for the exclusion from the United States of the diseases against which quarantine is directed.*

The truth embodied in this statement is abundantly established by the report of the committee of the College of Physicians of Philadelphia, 1888, in regard to the three ports it inspected, New York, Philadelphia, and Baltimore, during the time of prevalence of cholera at the quarantine station of New York in the autumn of 1887. (Since the publication of this report, the quarantine station of the port of New York has been improved in one or two particulars—for example, a crematory has been put into active operation for the destruction of infective corpses; the large interiors of the two observation buildings on Hoffman Island have been divided into compartments for the better isolation of small groups of immigrants from infected steamers. This truth is fully borne out in regard to the other quarantine stations between the St. Lawrence River and the Rio Grande by the elaborate official report Dr. John H. Rauch, Secretary of the Illinois State Board of Health, made to that body in 1886, and the latest information shows that but little, if any, permanent improvements have been introduced in them.

The defects of local quarantine stations arrange themselves into two principal groups: (1) Inadequacy of establishment. (2) Faults of administration.

1. With regard to THE ESTABLISHMENT—which term is here used to include the accommodations for the temporary housing and care of immigrants and travellers not sick, adequate hospital accommodations for the sick, appliances for disinfection, and the necessary medical, nurse, police, and other attendants for the care of both of these groups of individuals—only four of the many stations upon the Atlantic and Gulf coast may lay claim to anything like adequate provision. These are Grosse Isle quarantine station on the St. Lawrence River below Quebec, the Boston quarantine station on Galop's Island, that in New York Harbor, and those in the Mississippi River below New Orleans.

Of these four it may be said: first, that the former excellent establishment at Grosse Isle is now dilapidated and practically useless as a safeguard against the importation of the disease, in view of the fact stated in the report of Dr. Rauch, that during the quarantine season up to October 9, 1885, only 32 vessels out of a total of 420 arrivals had stopped at this station for examination; second, that at the quarantine stations at Boston, Philadelphia, Baltimore, and I believe also New Orleans, no permanent provision for the housing and care of travellers and immigrants not sick exists; third, that in the last-named particular, as well as in several other respects, the quarantine station at New York, hitherto regarded as fully adequate to the requirements of that great port of entry, still shows defects. According to the official description by Dr. Joseph Holt, president of the State Board of Health of Louisiana, it would appear that the quarantine station at the mouth of the Mississippi is, in respect of means of disinfection, fully up to the requirements of modern science. Of the intervening stations it is scarcely necessary to speak. Certainly, as regards the prevention of cholera, and to a less extent also of yellow fever, the greater number of them constitute quarantine stations simply in name.

2. When we come to consider FAULTS OF ADMINISTRATION, it is obvious that it is impossible to discover their nature or extent during times of quarantine inactivity—that is to say, during those fortunately more or less prolonged periods in which the absence of disease upon incoming ships narrows the duties of the quarantine officials down to the simple inspection necessary to establish that fact at such times; we have therefore at present no criterion by which to judge of the efficiency of the quarantine administration at the greater number of the stations. The fact already mentioned with reference to the quarantine station at Grosse Isle, that during the quarantine season of 1885, up to October 9th, only 32 vessels out of the total 420 were examined, indicates defects in administration at that station so glaring as to require no further comment.

Faults of administration equally serious, although of a different kind, were shown by the above cited report of the committee already mentioned to have recently (1887) existed at the quarantine station in the lower bay of New York harbor at a time when cholera actually existed in the hospital, and was from day to day finding new victims among more than five hundred Italian immigrants detained at the quarantine of observation on Hoffman Island. It is only necessary to emphasize this statement by calling attention to the following facts brought to light by the investigations of that committee:

First, the absence of resident medical officers both at the hospital on Swinburne Island and at the quarantine of detention on Hoffman Island (this has been in the present emergency temporarily remedied); second, the absence of anything like an adequate sanitary police force on the latter island; third, the lack of any proper daily systematic inspection, such as would enable the authorities promptly to discover and isolate new cases of cholera—I mean the lack of direct subordinates of the quarantine officer constantly on board *all* detained vessels for the detection of looseness of the bowels—an exceedingly important matter in the case of cholera.

B. *It is impossible adequately to protect the public health of the country against the importation of epidemic diseases by independent local maritime quarantine establishments.*

Rival political and commercial interests are inimical to the perfect protection of the general public of the whole United States by independent and local quarantines.

One of the most serious dangers to which the general public is exposed through local maritime quarantine organizations is the possibility of bodies of immigrants with infected baggage being transferred directly from the quarantine station to distant inland communities by rapid railroad journeys, without any prolonged sojourn or without any adequate inspection at, or precautions being taken by the authorities of the seaboard cities through which they pass. In point of fact, this danger was realized in regard to cholera in 1873, when epidemic outbreaks of that disease occurred in Ohio, Minnesota, and Dakota, which were "caused by cholera poison packed up in the household effects of emigrants from Holland, Sweden, and Russia, respectively. *These emigrants sailed from healthy ports in healthy vessels, and were subjected to the usual sanitary requirements of the period. They passed through New York and the intermediate territory without injury to the public health; but when their infected goods were unpacked in the interior of the continent they liberated the poison which gave rise to the local outbreaks.*" (Report of Dr. Rauch.)

It is but natural that municipal organizations should, in looking after their own interests, pay little regard to the welfare of distant communities.

In this connection may be noted the indisposition and failure on the part of local quarantine officers to notify the authorities interested, of the arrival of emigrants from infected localities. Notwithstanding the frequent paramount interest of inland communities in the efficiency of the establishment and administration of quarantine at the seaboard, the local authorities of the latter frequently evince an unreasonable jealousy of any sort of investigation or suggestion looking to the general welfare.

In the absence of any general regulation or supervision, local quarantine measures must in the nature of things be exercised with varying degrees of efficiency; the most complete establishment and perfect administration at a few ports might, therefore, fail to protect the country if defective or inadequate measures of quarantine were practised elsewhere.

C.—*National supremacy of maritime quarantine is necessary.*

1. It is only in this way that the necessary protection against the importation of epidemic diseases in all our ports can be continuously secured.

2. It is the only practical mode by which uniformity of establishment and administration, regard being had to the modifications made necessary by difference of latitude and other circumstances, can be assured. Such necessary uniformity can be obtained by no other arrangement, for the reason that the National Government is alone able to defray the expense of complete quarantine establishments at every port, according to the requirements of each and without regard to the revenue derived from the shipping of any.

3. The benefits of quarantine inure to the welfare of the whole country; therefore, it is just that money should be as freely expended when necessary at one port as at another, without respect to their relative commercial importance or to the amount of revenue collected in the shape of boarding and inspection fees, etc. It is manifestly unfair that the seaboard cities and States should, as at present, be obliged to bear the entire expense of quarantine establishments whose most important function should be the protection of the inhabitants of every region of the vast territory of the United States.

4. A national quarantine, properly administered and conducted by trained officials, accustomed to deal with contagious and infectious diseases, would tend to prevent panic, to allay undue anxiety, and to favor a reasonable sense of security.

5. Experience has shown that much needless alarm, as well as preventable danger, arises upon the appearance of an unfamiliar epidemic disease

at quarantine stations, as when cholera has shown itself at New Orleans or New York, or yellow fever at Philadelphia or Boston. A national quarantine would very greatly lessen the necessity for vexatious temporary interstate quarantines, which so seriously disturb inland trade.

6. A national quarantine system, directed in such a manner as to fully meet the requirements of existing sanitary knowledge, would not adversely disturb any commercial interest. It would, on the contrary, do away with many of the embarrassments incident to maladministration of existing local regulations, and the enforcement of measures which are unnecessary and are prompted by a state of panic due to ignorance of the best and most reliable methods of prevention.

7. A national quarantine would not necessarily supersede any existing arrangements regarded as expedient by local authorities. It should constitute an outer line of defence under exclusive control of the National Government, and it should be conducted wholly without extra cost to shipping, and would thus work no additional pecuniary hardship, even if the present fees were to be still exacted by the local authorities.

8. The ability of the National Government by an existing Act of Congress to come to the aid of local quarantine authorities in answer to the appeal of the Executive of any State in time of grave danger implies a function of very narrow scope and uncertain application. Appeals of this kind are likely to be deferred until the emergency is extreme, and the aid obtained from the Government is therefore likely to be rendered too late to accomplish its most important purpose, namely, the prevention of an invasion.

D. *A national organization would secure advantages not attainable by independent local quarantine establishments, however complete.*

Among many other advantages the following may be enumerated:

1. Suitably arranged and commodious buildings provided with necessary furniture and appliances at all ports.

2. An efficient corps of trained officials and assistants always on duty.

3. The practicability of the concentration of force, money, and attention at any threatened port without loss of time.

4. Officials under the control of the National Government and free from local political and commercial influence.

5. The objects of quarantine would be furthered by full and reliable consular reports and sanitary inspection of emigrants at ports of embarkation, functions properly belonging to officials of the General Government.

The organization of a supreme national maritime quarantine system in the United States should require:

1. That the whole matter should be placed under an appropriate department of the General Government.

2. A central bureau of control established at Washington.

3. A sufficient corps of medical officers and assistants, with nurses, sanitary police, laundrymen, engineers, and officers and crews for boarding tugs, organized at every station. *Among the requirements for the medical service should be a speaking knowledge of at least two modern European languages besides English.* In view of the constant and systematic attempts to falsify the ship's log for the purpose of concealing the existence of infectious disease during the voyage, the health officers should be able when necessary to go among the passengers and *themselves* closely question them, without the mediation of an interpreter. The establishment of a school and laboratories for sanitary instruction and research in connection with this service would be an advantage. In addition to the men on duty at the respective stations, there should be a sufficient number of medical and other officials fully trained in quarantine duties and familiar with contagious diseases, unattached and available for immediate auxiliary service at any threatened port.

4. The erection of necessary hospital and othe buildings, wharves, disinfecting apparatus, washhouses, latrines, etc., in suitable localities, when possible upon islands at or near the entrances to harbors, and at some distance from the main channel.

5. These stations must be organized and fully equipped at every port of entry of the coast in such a way as to meet the requirements of each port in the measure of its commerce and immigration and the especial diseases to which it is most exposed.

6. The cost of the establishment and maintenance of the national maritime quarantine should be provided for by appropriation from the National Treasury, and not from fees exacted from vessels.

The danger from immigrants would not be entirely banished, however, though the quarantine of the coast of the United States were perfect, for the way through the British Provinces would still be open to these travellers. In the absence of efficient quarantine inspection in the St. Lawrence River and in Nova Scotia, the attempt thoroughly to protect ourselves from importations of epidemics would necessitate the doubtful and difficult expedient of a land quarantine along our northern frontier. The more efficient plan would be to have the same precautions taken at the ports in the British provinces as should be practised at those in the United States; but this course could only be assured through treaty

or international agreement, which our local authorities are not competent to make.

It appears that our Canadian neighbors have already evinced their desire for uniform quarantine laws for the two Governments. The Provincial Board of Health of Montreal, recognizing a community of interest in the question of maritime quarantine, deemed the presence of the Canadian Fish Commissioners in Washington opportune for the adoption of resolutions requesting the Commissioners to urge upon the American authorities "the necessity of establishing uniform quarantine regulations for both countries." In connection with an efficient system of national quarantine a harmony in the provisions of law in the United States and in Canada seems indispensable for the full protection of our extensive northern frontier, and our National Government should be strongly urged to respond actively to the expressed wishes of the Canadian authorities relating to such an important matter of common interest.

PROPHYLACTIC MEASURES AGAINST ASIATIC CHOLERA.

BY A. C. ABBOTT, M.D.,
FIRST ASSISTANT, LABORATORY OF HYGIENE, UNIVERSITY OF PENNSYLVANIA.

WITH the existence of Asiatic cholera in the western seaports of Europe, the question involving its possible importation into this country becomes a grave one, and it behooves us to exercise the greatest vigilance in endeavoring to prevent such a calamity.

There is no doubt that the suggestion, radical though it is, that has recently been made to the President of the United States by the Medical Board of the Johns Hopkins Hospital, at Baltimore, viz., that immigration be entirely interrupted until after the disappearance of cholera from the western cities of Europe, is by far the safest measure that could be employed. It is practically impossible, by the means ordinarily employed, to disinfect and render harmless every article from an infected ship; and, unless this is done, there can be no assurance that the disease will not be introduced, through articles contaminated with the disease-producing element, into localities to which such articles are carried.

Should it not be considered wise to check absolutely all immigration into the United States until after the disappearance of the disease from the infected ports of Europe, there remains to be considered the question of quarantine. Quarantine, if maintained for a sufficiently long period, offers a certain guarantee of safety against the spread of the disease through the bodies of individuals who come from the plague-stricken districts; for they are usually detained for a length of time sufficient to permit of the appearance of the disease had the causative elements gained entrance into their bodies; but, as is most commonly the case, the means employed for disinfecting the personal effects of these individuals that arrive along with them on the same ship are of but little value; and it is through the channel afforded by soiled and infected bedding, clothing, etc., that the greatest danger is to be anticipated.

Another point that is worthy of consideration in connection with the subject of quarantine and of absolute cessation of immigration is whether or not it would avail us much without the institution of similar measures by our neighbor, the Dominion of Canada, into whose eastern seaports immigrants are constantly arriving from the same places as those from which come the immigrants against whom we are taking such radical steps. With Canada separated geographically from the United States by only an imaginary line, it must be plain that it would be practically folly for either country to close its doors against the tide of immigration without similar steps on the part of the other; for, unless they act in unison, the tide will simply be deflected from the closed to the open way, and, related geographically as both are, the existence of cholera in either place would be a menacing danger, if not a practical assurance, of its appearance in the other.

As yet, thanks to the vigilance of the health officials along the Eastern seacoast, there has been no appearance of the disease among us, but in anticipation of such a visitation it might be wise to consider the measures that are known to be most effectual in checking its spread.

Of primary importance in the management of cases of cholera, is of course an accurate diagnosis of the condition; and fortunately this offers but little difficulty to the skilled clinician, particularly if it has been his privilege to have seen the disease before, and still more especially if it is in his power to bring bacteriologic methods to his aid.

When recognized, the management of these cases and the methods of prophylaxis against their spread depend so largely upon absolute isolation and attention to sanitary surroundings that too much stress cannot be laid upon these points.

By isolation is not meant simply the confinement of a patient in a room or apartment set aside for infectious maladies, but it comprises a great deal more: it must be absolute, or the sense of security that it affords becomes false, and is, therefore, worse than useless. The isolation of a patient with this disease or with any other form of highly infectious malady implies the provision of separate apartments; an attendant whose duties are confined to patients who are similarly affected; plates, dishes, bed-pans, bed-clothing, etc., that are used by no other patient;

and a rigorous disinfection of all excreta, vomited matters, and refuse food *before they are removed from the apartment occupied by the individual.* It involves the greatest care and intelligence on the part of the attendant, to close all channels through which he or she and the patient may become a source of contamination, for contamination and spread of these diseases occur almost as frequently through the attendant as through the patient. The reason for this can be appreciated only after an intimate acquaintance with the nature of the causative element and its peculiarities when outside the body of the diseased individual.

Studies that have been made upon Asiatic cholera in recent years have shown it to be of an infectious nature and due to the activities of a specific lower organism which is present in the intestinal canal of all infected persons. This organism belongs to the family of bacteria. It is a bacillus, comma-shaped or curved in its morphology, and presents peculiarities of growth and chemical reactions that render its identification by the bacteriologist a matter of certainty and of a fair degree of simplicity. As a result of studies upon the nature of this organism, when isolated under artificial conditions, it is found to possess a relatively low degree of resistance to both thermal and chemical agents—that is to say, its vitality and disease-producing properties are easily destroyed by heat, and it quickly becomes inert when subjected to those chemical substances that are known to possess germicidal qualities. It likewise loses its resistance when *absolutely* dried, but retains it for a longer or shorter time when the drying is not complete. Having gained access to water, its growth seems to depend upon the amount of organic matter present, the reaction of the fluid, and also upon the number and kinds of other organisms that may be present, for, owing to the antagonism that is seen to exist between different species of bacteria, it not uncommonly occurs that one species or group may develop entirely at the expense of the other, which quickly disappears.

Milk offers a most favorable nidus for its growth, as do likewise many solid materials used as food-stuffs, and particularly after they have been cooked. The bacillus is very sensitive to both acids and alkalies, and is quickly killed when subjected to the influence of either. As has been stated, it is located in the intestinal tract of the affected individual, and therefore appears in enormous numbers in the intestinal evacuations from these patients; and it is through these evacuations that the disease is usually disseminated.

Some of the more common channels through which diseases of this class are transmitted are drinking-water, milk, and solid food-stuffs that are eaten in an uncooked condition, such as salads, fruits, etc.

Bearing in mind the points that have been here hastily reviewed, it is easy to comprehend the value of measures that will now be suggested for prophylaxis against the disease.

During the existence of an epidemic of Asiatic cholera—

1. No food, of whatever character, should be eaten in an uncooked condition.

2. All water intended for drinking purposes should be heated to a temperature of 80° C. (176° F.) for half an hour, or boiled for ten minutes and allowed to cool before using. When iced, the ice should be placed around the vessel containing the water, and not in it, as ice may contain organisms that have not been rendered incapable of development by the low temperature to which they had been subjected.

3. Milk should be steamed in a vessel placed within an ordinary kitchen steamer (if a regular sterilizer is not at hand) for fifteen minutes, and allowed to cool before using. The same precaution as regards icing is to be taken as was recommended for water. A somewhat lower temperature may be employed if care be taken that it does not fall below 80° C. (176° F.), for half an hour. This method requires a little more care, but causes less alteration of the milk than that following the application of a higher temperature. If the milk is to be kept for any length of time after heating, it is better to heat it in clean bottles plugged with cotton-wool. These bottles are placed in the steamer and heated for the proper length of time. They are then removed, kept in a cool place, and their plugs not removed until the milk is to be used.

4. Salads of uncooked materials are to be dispensed with, and all vegetables, fruits, etc., particularly those coming from districts in which "night-soil" is employed as fertilizer, are to be thoroughly boiled or otherwise cooked before using.

5. If possible, a daily bath in warm water, with the use of soap, should be indulged in, and the teeth should be carefully brushed after each meal. In short, rigorous attention to personal hygiene is of greatest importance.

6. In the management of cases of Asiatic cholera, isolation should be as complete as possible. Wherever practicable, tents on open lots, lawns, or fields are perhaps the best shelter for the sick. These patients should be provided with special nurses, who are made thoroughly aware of the fact that they themselves afford as potent a channel for the dissemination of the disease as do the patients themselves. These nurses should come in contact with no one other than the patient and physician. They should be impressed with the necessity of rigorous attention to their personal hygiene, frequent baths and changes of clothing being all-important. The

nurse should under no circumstances partake of food in the apartment occupied by the patient, and never partake of any portion of the food remaining from the meals of the latter. Before meals her hands should be scrubbed with soap, brush, and hot water, and after drying be rinsed off in 1:1000 solution of corrosive sublimate and dried.

7. The evacuations and vomited matters of the patient should be disinfected *as soon as passed and before they are removed from the apartment.* This is best accomplished by thoroughly mixing them with ordinary milk of lime (fluid "whitewash") until the mass is of a *distinctly alkaline reaction.* They should remain in contact with the lime for from twenty to thirty minutes. After this they can with safety be emptied into the general receptacle for such matter.

8. Bed-pans, bed-clothes, etc., that have been soiled by the evacuations of the patient must be cleansed by boiling for from *twenty to thirty minutes* in water to which about 1 per cent. of common soda has been added.

9. Mattresses should be subjected to sterilization in a *steam sterilizer for one hour.* If this is impossible, they should be burned. It is difficult to render harmless such large objects without injury to them, and unless the facilities are perfect these objects should be completely burned.

10. All clothing, towels, and napkins from the patient should be placed in clean canvas bags and conveyed from the apartment. At a proper place, arranged for the purpose, they should, without being removed from the bags, be sterilized in a steam sterilizer at 100° C. (212° F.) for one hour. They can then be removed and washed with safety. If it is not possible to employ steam they can be packed in an ordinary wash-boiler and boiled for half an hour in water to which 1 per cent. of common soda has been added. Care should be taken that each article is thoroughly soaked by the water during the boiling.

11. All dishes, knives, forks, spoons, etc., used by the patient should, after each meal, be boiled in 1 per cent. soda-water for half an hour.

12. The remains of meals should be thrown into a vessel containing milk of lime. At the end of each day, the vessel should be emptied into the general receptacle for feces, etc., and refilled with the milk of lime for the next day's use.

13. If practicable, the patient should be bathed as often as circumstances will permit, and the nates, thighs, and anus thoroughly cleansed with soap and water.

Before closing, emphasis will again be laid upon the necessity of *isolation* in the sense laid down in the foregoing directions: Separate attendants, who do not come in contact with other attendants whose duties take them to patients sick of other diseases; special clothes, bed-clothes, dishes, knives, forks, spoons, napkins, towels, etc., for each patient, and a careful disinfection of the same as soon as they have been used, and are ready to be removed; disinfection of excreta with milk of lime *at the bedside, or before removal from the apartment.*

After the death or removal from the apartment of the patient, the walls should be wiped down with moist cloths, sponges, or fresh bread-crumbs. These are to be burned as soon as used. Floors should be scrubbed with ordinary soap after having been *saturated* with a solution of 1:1000 corrosive sublimate. Furniture should be thoroughly wiped with cloths soaked in 1:1000 corrosive sublimate solution. All cotton or woollen materials in the room should be either steamed or boiled, according to the rules already given for bedding, clothing, etc. The room should then be thrown open to air and sunlight for several days.

In the event of death, the body should, without being washed, be immediately wrapped in sheets, placed in a coffin, and buried or cremated as quickly as possible. If buried, it should be placed beneath the surface at a depth of not less than six feet, and not in the near vicinity of a spring or watercourse.

There is absolutely no objection to burying the bodies, providing the interment does not take place in a locality where a spring or watercourse could be directly contaminated; indeed, on the contrary, experiment has demonstrated that this method of disposing of infected materials is second to cremation only in its requiring a somewhat longer time for the accomplishment of the same end.

The foregoing directions comprise those sanitary measures that have been found by experience to afford the greatest protection against the contraction and spread of infectious diseases generally, and particularly of that class of diseases of which Asiatic cholera is a representative.

NOTE.—In times of epidemic, the most common prophylactic measure is, perhaps, fumigation by means of sulphurous acid. This is usually accomplished by burning sulphur in the infected room. In order to carry out this measure with any degree of certainty that it is doing what one desires, a great deal of care and detail is necessary, and for that reason it is not a measure to be recommended for general use. By the ordinary means that are employed in fumigation, practically nothing of good is accomplished. It is, however, possible to disinfect apartments by this means if they are closed as tightly as possible, by pasting paper over the cracks about the doors and windows, and burning not less than from a pound to a pound and a half of sulphur for every 1000 cubic feet of space to be disinfected. Even then the best results are obtained only with

the simultaneous generation of steam in the apartment, or by previously having moistened every crack and crevice in the wall, ceiling, and floor with water. The reason for this is that sulphurous-acid gas in a dry state or upon dry objects has but little germicidal value; this property is only developed in the presence of moisture.

NOTES ON THE DIAGNOSIS AND TREATMENT OF CHOLERA.

BY WILLIAM OSLER, M.D.,
PROFESSOR OF MEDICINE, JOHNS HOPKINS UNIVERSITY, BALTIMORE.

THE welfare of an entire community may depend on the early recognition of the nature of the disease. With an outbreak at our doors, so to speak, the physician will scrutinize sharply all dubious cases, and in a natural anxiety to protect the patient and his family from trouble and inconvenience, will remember also the larger obligation to do all in his power to prevent the spread of one of the most formidable of human scourges.

The diagnosis of Asiatic cholera, easy and clear during the prevalence of an epidemic, may be at its outset (and under certain circumstances) exceedingly difficult. The clinical features of the disease and the bacteriologic examination of the stools furnish the data upon which to base an opinion.

A. *The clinical picture.* Here we are at once confronted with the lack of symptoms distinctive of, and peculiar to, the disease. A case of cholera nostras (morbus) may present every feature of the imported malady; and though it rarely kills with the same rapidity, yet I have known death to follow in an adult within fourteen hours. The preliminary diarrhea, the vomiting, the copious serous discharges, the collapse, and cyanosis offer no differential criteria.

It is only, however, during "cholera times" that this difficulty becomes serious; and then during the summer months, if the number of cases increases rapidly, it may tax all the resources of our art to reach a positive conclusion. The recent experience in Paris is, in this respect, most instructive. Throughout the months of May, June, and July, an epidemic of choleraic diarrhea broke out in certain of the suburbs that received polluted Seine water, and more than four hundred deaths occurred. The disease, which was called cholera nostras, choleriform diarrhea, and cholerine, in many instances killed within a few hours and had all the clinical characters of the Asiatic form; but the persistence in certain localities, without rapid extension, and the freedom of the city proper, encouraged the hope that it was due to intrinsic and not to extrinsic causes.

Dupuy's interesting report from the Hôpital St. Denis describes a disease of abrupt onset, a rapid course, and of great fatality, thirty-one deaths occurring in sixty-five cases. There seems to have been a disposition on the part of the authorities to conceal the serious nature of the epidemic—partly, no doubt, in consequence of the absence at first of positive bacteriologic information, and partly owing to the difficulty in obtaining uniformity in the opinion of the physicians, some declaring it to be true cholera, others that it was only a somewhat widespread endemic of cholera nostras.

Since, then, it must be acknowledged that in individual cases and even in local outbreaks, it may not only be difficult, but even impossible to distinguish clinically the two affections, the physician should, from the outset (particularly at the present juncture, when an outbreak may occur), take precautions as if dealing with true cholera, especially in carrying out disinfection of the stools.

It is of the greatest importance to see cases early, before the symptoms of collapse appear, and people should be instructed to seek advice on the first indication of gastro-intestinal disorder. Dyspeptic conditions and diarrhea, often premonitory symptoms, give timely warning in many instances, but by no means in all, for an individual may go to bed feeling quite comfortable and awaken during the night with cramps, vomiting, and diarrhea.

It is scarcely necessary to refer to the attacks simulating cholera produced by arsenic, corrosive sublimate, and certain fungi.

B. *Bacteriologic examination.* This is of the first importance, and should be carried out by experts who have critical familiarity with the complex flora of the intestines. Though there are difficulties, the differentiation of the comma-bacillus of Asiatic cholera can be made, and has been made in the recent outbreaks in Paris by Netter, Chantemesse, and Roux. In all doubtful cases, measures of isolation and disinfection should first be used, and then a thorough examination carried out to determine the presence or absence of the comma-bacillus.

It seems almost an abuse of terms to speak of the *treatment* of a disease of which the mortality is at least 50 per cent.; but although measures are futile in the more malignant cases, there can be no question that prompt action may arrest progress in the less severe forms, while we have at our command the means of alleviating many of the most distressing symptoms.

The experiments of Haffkine encourage the hope that protective inoculation may yet reach a satisfactory position and be more worthy of confidence than the vaccination of Ferran, but we have no ready method at present available. The ideal treatment would be found in a remedy that, given early,

would either control the multiplication of the bacilli in the bowels or neutralize the action of their poisonous products. Several drugs have been recommended for this purpose—salol, particularly on experimental grounds, by Loewenthal; and reports from various sources speak of good results. The drug may be given freely, in doses of from gr. xv to xxx every hour at first, for four or five hours, and subsequently every three hours. It probably acts by retarding the growth of the organism. There is no known remedy that is directly antidotal to the cholera poison. Brunton has advised atropine, to counteract the supposed contraction of the pulmonary arterioles, regarded by Sir George Johnson as the cause of the cyanosis.

The symptomatic treatment should be directed to—

a. Relieving the collapse by hot stimulants, as tea, coffee, brandy, and the external application of heat in various ways. The hot bath should be tried.

b. Checking the vomiting. Cracked ice and champagne, creasote, hydrocyanic acid, menthol, and other means may be tried.

c. Checking the diarrhea. There can be no question that the collapse is directly due to the diarrhea, and yet it is probably an effort of Nature to get rid of the poison. Indeed, an evacuant treatment has been urged by Johnson, who advises the use of castor-oil; but the general opinion runs strongly in favor of the use of remedies to check the profuse discharges. Various combinations of opium and ether are employed, with or without astringents. Morphine, hypodermatically, is of the greatest value for this purpose, and is to be preferred to opium by the mouth if the vomiting is obstinate. It has the advantage also of quickly relieving the pains and allaying the terrible restlessness. Lactic acid has been strongly recommended by French physicians.

Two special measures may be given a thorough trial, viz.: *hypodermatoclysis* and *enteroclysis*. The former Cantani urges upon the following grounds:

"1. The death of cholera patients supervenes either by asphyxia in the algid period or in consequence of a tumultuous reaction in the typhoid stage, because the organism, through diarrhea and vomiting, has lost a very large quantity of its aqueous constituents, and has retained or cannot longer eliminate the excrementitious materials—the products of combustion and decay—on account of suppression of the functions of the kidneys.

"2. Recovery occurs when absorption is resumed, in the intestinal canal, of the fluids which furnish to the blood and to the tissues the water which is indispensable to them."

The formula which he advises is as follows:

℞.—Sodium chloride . . .	80 grams.
Sodium carbonate . . .	6 "
Boiling water . . .	2 liters.

With a fountain-syringe and the canula of an aspirator, from one to two liters of the fluid is allowed to flow gently beneath the skin of the flanks. The tumor formed by the fluid is slowly rubbed away. He advises the warm bath in conjunction with the infusion. The operation may be repeated in two or three hours.

Enteroclysis is even more warmly recommended by Cantani, a mixture of laudanum and tannic acid being employed. The following is the procedure: "If a slight attack of a seemingly simple diarrhea does not yield at once to rest in bed and the administration of a dose or two of warm infusion of chamomile, to which chlorodyne or laudanum has been added in proper quantity, then recourse should be had, without loss of time, to the warm enteroclysis of tannic acid. This enteroclysis is essentially an injection into the colon, per rectum, of a considerable quantity of warm water holding in solution a certain percentage of tannin. The rectal syringe, by means of which the injection is made, is furnished with an elastic tube three meters in length, with a nozzle at the free extremity and a cock at the proximal end. With such an instrument not only the whole length of the colon can be filled with the desired fluid, but also not infrequently a quantity can be made to pass beyond the ileo-cecal valve into the small intestine.

"The tannic solution recommended by Cantani is constituted for an adult as follows:

"℞.—Boiled water or infusion of chamomile, warm	2 liters.
Tannin . . .	5 to 10 grams.
Laudanum . . .	30 to 50 drops.
Powdered gum arabic .	50 grams.

"The temperature of the mixture and the quantity to be injected should vary according to the age of the patient and other circumstances, in the judgment of the physician. The most convenient time for administration of an enteroclysis is immediately following an evacuation." (Shakespeare.)

BRIEF SUGGESTIONS AS TO THE PREVENTION, RECOGNITION, AND TREATMENT OF CHOLERA.

BY ROLAND G. CURTIN,
OF PHILADELPHIA.

IN view of the probable visitation of the Asiatic scourge, it may not be amiss, at this time, to call attention to some of the more practical features of the disease.

First, as to *prophylaxis*. The prevention is better than the cure. After the germ has obtained a foot-

hold, what is the proper course to pursue to guard against the disease?

The first important step is to keep the body and its surroundings perfectly clean. The body should be frequently bathed and the clothing changed. See that all cellars are free from contaminating substances, and all privies and gutters properly disinfected. Avoid crowding, as this favors the propagation of the disease. Eat moderately of good, nutritious food (don't starve yourself). Avoid fatigue, exposure, intemperance, and all excesses or anything that has a tendency to depress the vital energies. Take a full amount of sleep at regular intervals. Regularity and temperance in all things are of the utmost importance.

All drinking-water and milk should be boiled—this being especially important in Philadelphia, owing to the danger of the water being contaminated in its passage through the Schuylkill valley above the city. Avoidance of all saline laxatives i is a safe rule during an epidemic.

I will quote from an article of mine entitled "Sulphuric Acid as a Prophylactic in Cholera," published in the *Philadelphia Medical Times*, July 12, 1873:

During this last visitation (1866–67) I was resident-physician in the Insane Department of the Philadelphia Hospital. The disease had almost entirely disappeared from the city and from all parts of the Philadelphia Almshouse and Hospital, except from the women's wards in the insane department, where it still continued in a very virulent form. Strange to say, it was almost entirely confined to three of the seven wards on the female side of the hospital. It was so persistent that the Board of Health paid the hospital an official visit, but were unable to account for the presence of the disease in particular wards. It is true that the women's apartments were very much crowded, there being three hundred and fifty inmates, but the wards in which it was so prevalent had proportionately fewer inmates than others which almost entirely escaped. During the whole epidemic only two cases occured in the male wards, while among the females one in every nine was attacked. Sex would not account for this difference, for statistics at large show that male and female lunatics are equally liable to the disease.

After having concluded to use sulphuric acid, the next thing was to administer it to all the patients, many of whom were so suspicious that they refused at all times to take medicine, for fear of being poisoned. Knowing that it would be impossible to conceal it in their food or usual drinks, I concluded to administer it disguised as lemonade, and announced through the nurses to the patients that I intended to "treat" the whole institution to lemonade every day, which announcement was well received in general, and by some of them with enthusiasm. The drink was made in this way. About twenty drops of the dilute sulphuric acid were mixed with four ounces of water and sweetened with white sugar. Some oil of lemon and a few cut lemons greatly assisted in the disguise. What followed the administration of the sulphuric acid can best be shown by the notes taken at the time. The diary was begun on August 20, 1866, before which time seventeen cases had occurred in the insane department.

August 20.—Four new cases.
August 21.—Four new cases.
August 22.—Four new cases.
August 23.—Two new cases. Board of Health visited the hospital.
August 24.—Five new cases.
August 25.—One new case. Acid given for the first time, in the afternoon.
August 26.—Four new cases *during the early morning hours* within twelve hours after the first administration of the acid.
August 27.—No new cases.
August 28.—One new case—a woman who refused to take the acid.
August 29.—No new cases.
August 30.—No new cases.
August 31.—No new cases. The acid was discontinued.
September 1.—No new cases.
September 2.—Two new cases—two days after the suspension of the acid.
September 3 —No new cases. Acid resumed.

The acid was continued for some time, and no more cases occurred.

It will be seen by the above diary that up to the time of administering sulphuric acid the disease was pursuing a steady course in the female department. It is true, and should be here stated, that every means had been tried to banish the disease, such as ventilating and cleansing the wards, spreading disinfectants, scattering the patients by using a large sewing-room for a sleeping ward, attention to diet, etc., but without apparent effect. The acid was first given on the 25th of August and continued until the 31st. Four cases occurred *within twelve hours* of the time when the acid was first given. After this only one case occurred while the acid was being used, viz., on the 28th. This was a poor ignorant (?) lunatic, who, upon tasting it, spit it out, and surprised me very much by saying, with great vehemence, "Doc-ther, ye call this limonade; but ye can't desave me; it's nothing but ile of vitriol." On the 31st of August it will be seen that the "lemonade" was stopped, on account of the exhaustion of the supply of white sugar in the drug store, as without this sugar it would have been impossible to prepare the acid in such a manner as to insure the patients' taking it. On the 2d of September, *two days after the suspension of the use of the acid, two new cases occurred*, both of which proved fatal. The prophylactic was then resumed, and *no new cases* afterwards occurred in the insane department; but cases continued to arrive from the city until the 1st of November. The use of the acid was continued uninterruptedly for several weeks. My friend Dr. J. F. Wilson gave it to the patients in the surgical wards during the epidemic, and he informs me that *cholera visited every department of the almshouse and hospital except the surgical wards.*

The question naturally arises, was it the sulphuric acid that arrested the march of the disease? I think it was, for the following reasons:

1. *The prompt disappearance of the disease within twelve hours of the time when the acid was first administered*, the only case arising during its use being that of a patient who refused to receive it. The acid was stopped on the 31st of August, and two days after this two cases occurred. The acid was then immediately resumed, and not a single case occurred afterwards.

2. *The fatality attending the disease.* When an epidemic declines from natural causes, it generally becomes less fatal. Of the four patients attacked on the 26th of August, three died, of whom one was a young, robust epileptic, who lived but five hours after the first symptoms; another was a strong lunatic, who succumbed in nine hours. The two cases which occurred on the 2d of September, after the suspension of the use of the acid, both died, thus showing that the type was none the less fatal.

How did the sulphuric acid act? According to Dr. G.

B. Wood, it has the following effect upon the system, viz., *tonic, astringent, refrigerant,* and diuretic. It has been largely used in the treatment of the first and second stages of cholera. Dr. Macnamara, in his work on Asiatic Cholera, recommends the use of dilute sulphuric acid, in doses of fifteen minims, in the second stage. The celebrated "Austrian Specific" was composed of sulphuric and nitric acids. Nitric acid had been used in India in the treatment of cholera with considerable success. It was tried in England and found to be of no avail, when further investigation proved that the nitric acid of India contained a considerable amount of sulphuric acid. The latter was an accidental product of the manufacture of the nitric acid in India. Hence the use of the combination of these two acids in the treatment of cholera. Elixir Hallerii, or liquor acidi Hallerii, has been much used in India, and is ordered as part of the medical stores of the British army there. It consists of sulphuric acid and alcohol. Drs. Buxton, Sansom, and Fuller, of England, used sulphuric acid with success in the first stages of cholera, especially in the choleraic diarrhea. From the above statements it would appear that sulphuric acid itself has some effect upon the disease, and now we will proceed to discuss its influence as a prophylactic.

It had been noticed that workers in copper were remarkably exempt from cholera, and upon investigation it was found that the air surrounding them was considerably charged with sulphuric acid, which gave rise to the supposition that this was the active preventive agent. This led to the use of sulphuric acid in cholera districts and hospitals, but with what results I have not been able to learn.

It has already been stated that sulphuric acid may act beneficially independent of any specific action upon the cholera germ.

I have said that it is a tonic, astringent, refrigerant, and diuretic. The vital energies are often very much reduced, digestion is poor, and the intestines and the system at large are in a relaxed condition, the result of the high temperature of summer. Here we find the condition favorable to an attack of cholera. The tonic, astringent, and refrigerant effects of the sulphuric acid would all be eminently indicated by the conditions, and its administration might tide the patient over the period of danger. It may also act beneficially in another way. We all know the depressing effect of fear, which undoubtedly predisposes to cholera. A prophylactic given in such cases would allay the fear and thus ward off the disease.

It would seem that the article is of more importance since the comparatively recent discovery of the comma-bacillus, which cannot live in an acid medium. May this fact not account for the efficacy of sulphuric acid as a prophylactic? The germ is, perhaps, destroyed in the alimentary canal before the products of its activity are taken up by the system. The remedy is in any case well worth a trial; for, if it should only allay the fears of the timid, the otherwise resulting depression might be avoided.

Diagnosis and Treatment. It is most important to recognize the disease in its earlier stages; for at this period simple treatment is usually attended with success. Later on, in the cold stage, or in that of collapse, about 50 per cent. die, even under the most skilful management of the physician and nurse.

What are the first symptoms of cholera? The *first stage* is the forming stage or *stage of invasion,* sometimes called *cholerine,* or the *diarrheal stage.* The intestines are in an irritable condition. The discharges are at first yellow and fetid; later on becoming whitish or grayish, and being composed of serum and epithelium. Fibrinous flakes are sometimes present and the stools are blood-stained. This is the stage of invasion. It may come on abruptly, or gradually. Death may, in some rare cases, take place without vomiting or diarrhea. I had an opportunity of observing two such cases at the Philadelphia Hospital in 1866. At the autopsy the stomach and intestines were found filled with the so-called "rice-water" material, which usually constitutes the discharge in cholera.

Sometimes the first stage is abruptly ushered in with restlessness, wakefulness, noises in the ears, languor, depression, headache, muscular weakness, and a weak, small pulse.

In the cases of insidious onset the earliest symptom is a mild diarrhea. The stools are at first yellow, afterward watery, copious, and frequent, with abdominal pain, slight tympany, borborygmi and nausea. The extremities, especially the lower, become painfully cramped.

This stage may last several days, or only for a short time, and may escape observation altogether. Prompt measures at this stage may stay the disease; hence the importance of recognizing the earliest symptoms.

Thoughtless persons and children are usually the ones that allow this stage to pass by without attention. Such persons should be carefully watched by those having charge of them.

During an epidemic, any tendency to looseness of the bowels, even if seemingly innocent, should be promptly attended to by sending the patient to bed, and carefully regulating his diet. Chilling draughts should be avoided, and under no circumstances should patients be allowed to rise—a bedpan being used when the bladder or bowels are to be evacuated.

The prognosis is especially grave when the attack is ushered in abruptly, with great irritability of the stomach and bowels, profuse depression, with painful cramps in the muscles of the legs and abdominal walls.

Dr. A. Herman[1] states that the detection of albumin, cylinders, and epithelium in the urine during the time of the precursory diarrhea is a sure sign that the case is one of cholera; otherwise the diarrhea is of other origin. The discovery of the comma-bacillus in the dejections will afford positive proof.

The treatment for this stage is usually as follows: If the case is tardy in onset, simple remedies are

[1] Allgem. Wien. med. Zeitschr., 1873.

usually efficacious, together with the directions already given as to rest and nursing. A combination of general and local stimulants, local sedatives, astringents, and stomachics has proved of benefit in the majority of cases.

A formula that has heretofore been much used and extolled is the so-called Asiatic tincture:

℞.—Chloroformi . . . . . fʒj.
Camphoræ . . . . . ʒij.
Ft. sol. et adde
Sp. ætheris. co. . . . . fʒij.
Tr. opii
Tr. capsici } . . . āā fʒss.—M.
Ol. caryophylli
S.—From five to fifty drops in water.

The following combination has been recommended by Dr. E. R. Squibb:

℞.—Tr. opii
Tr. camphoræ } . . . āā fʒj.
Tr. capsici
Chloroformi (purified) . . . fʒiij.
Alcoholis (strong) . . q. s. ad fʒi.—M.
S.—A teaspoonful in water.

Dr. Alfred Stillé recommended for the precursory diarrhea a formula containing tincture of catechu, chalk mixture, and a small quantity of laudanum. Chlorodyne has been much used in this stage of the disease. Small doses of brandy with lime-water, frequently repeated, or, better, plain soda-water, sometimes control the vomiting. In this stage opium, with calomel or blue pill, has been recommended by many writers, to stimulate the biliary secretions. For local application, mustard plaster or mustard and chloroform sometimes allay the abdominal pains.

The second, or cold stage, or that of collapse. In this stage the patient is in great danger. The most prominent symptom is the constant discharge of sero-epithelial material from the stomach and bowels. This fluid is of a grayish or whitish color, serous, intermixed with fibrinous flakes, and is usually passed without effort, being sometimes ejected from the bowels and stomach simultaneously. In some cases there is a persistent hiccough and painful cramps in the muscles of the legs, arms, fingers and toes, and abdominal walls. The cramps are often attended with contraction of the extremities. The patient is weak, stupid, heavy; the eyes are dark and sunken; the conjunctivæ are dull, dry, and covered with a film; the tongue is dry and covered with a light, pasty film, and the nose is sharp and pinched.

The breath is icy cold, the respiration shallow, while the voice is husky and whispering. The skin is cold, blue, shrivelled, and bathed in a cold, clammy sweat. The extremities first become cold, and afterward the trunk. The urine is scanty or suppressed. The blood is deprived of its water, thereby becoming greatly decreased in bulk and thickened, so that the poor, weak heart cannot propel it to supply the thirsty and famished tissues. The patient grows weaker and passes into a state of unconsciousness, and death ensues. Treatment at this stage is usually followed by little apparent benefit.

The skin and mucous membranes are pouring out the fluid from the blood and tissues, so that they are in no condition to absorb medicines brought in contact with them. Medicines injected subcutaneously are scarcely absorbed, for osmosis is reversed. Intravenous and rectal injection of saline fluids has been used with varying results. The bowel would not be likely to absorb and the fluid would probably be rejected. The object of the saline injections is to make good the loss caused by the general leakage from the body. Transfusion of milk has been tried to the same end.

Dr. David B. Smith has proposed the injection into the veins of amyl nitrite, to overcome arterial muscular spasm. He injected into the veins of a patient two drams in thirty-five minutes without appreciable benefit.

A physician in India has recently published his experience with corrosive sublimate, which he employed in doses of $\frac{1}{100}$ grain.

Artificial heat and cutaneous stimulants have been used over and over again, with but little effect. If the patient survives the second stage, reaction slowly takes place. The treatment of the second stage is eminently unsatisfactory. The ability of the patient to tide over the crisis seems of more importance than the administration of medicaments.

The third stage, or stage of reaction, or stage of secondary fever. The conditions demanding treatment are extreme prostration, fever, and an alimentary canal deprived of its epithelium. The secretory activity of the kidneys is greatly impaired. The condition is decidedly typhoid. The plan of treatment will be expectant. One important point to be borne in mind is that the stomach and bowels will tolerate but little nourishment, for even after the patient has been convalescing for days a slight error in diet may induce a relapse.

I append a list of the medicines that have been employed in the treatment of cholera—

Mercury—Calomel, blue pill, and corrosive sublimate in small and frequently repeated doses. The first two are often combined with opium. These are given for the purpose of quieting the stomach and stimulating the natural secretions.

Tincture of camphor—Used as a systemic as well as a local sedative.

Tincture of capsicum—A stomachic and stimulant to the gastro-intestinal canal.

Opium.—Tincture and deodorized tincture as local and general sedatives. To be given in small doses. Morphine has been used hypodermatically.

Chloroform—Both as a stimulant and sedative, to allay gastric irritability.

Sulphuric Acid—A tonic, refrigerant, and astringent to the gastro-intestinal mucous membrane (and a germicide).

Nitric Acid has been employed by itself and in the form of Hope's mixture, a combination with tincture of opium and camphor-water.

Creasote—As an antiseptic, as well as to allay irritability of the gastro-intestinal mucous membrane.

Brandy is the favorite alcoholic remedy, used early in small doses, in combination with lime-water or plain soda-water. Champagne has been largely used to allay gastric irritability.

Turpentine has been administered as a stimulant.

Atropine acts as a stimulant to the respiratory and cardiac centers and diminishes secretion.

Amyl Nitrite has been tried in the hope that it would dilate the arterioles and subdue muscular spasm.

Arsenic has been extensively used to check the vomiting, small doses being used.

Phosphorus, copper salts, lead salts, strychnine, have also been administered.

22 S. EIGHTEENTH STREET.

CHOLERA AND ITS MIGRATIONS.

BY HENRY HARTSHORNE, M.D.,
OF PHILADELPHIA.

THE extreme public alarm existing in this country concerning cholera, and the action of municipal and national authorities in their endeavor to exclude it, have caused immense commercial losses and great inconvenience, indeed distress, to individuals and families. It seems important, therefore, that well-defined and well-sustained opinions on the subject should be held by physicians and sanitarians, to whom the people naturally and properly look for advice.

The intervals, often of a number of years, between the widely-prevalent epidemics of cholera, especially in this country, leave opportunity for many of the facts in their history to be practically forgotten. Of physicians now in practice, a large number did not have personal acquaintance with the visitation of 1866; few of them reach back in memory to those of 1849 and 1854. Moreover, the complexity of the subject of the causation of disease, particularly with regard to the questions of personal contagion, local infection, fomites, and atmospheric transmission, accounts for the diversity of opinion even amongst medical men; leaving the conclusions current from time to time often remote from the secure foundations of exact science.

Personal acquaintance, as a practitioner, with cholera in 1849, 1854, and 1866, as well as a good deal of attention to the literature of the subject,[1] makes it pardonable for me to recall at this time some of the facts, and the legitimate, indeed logically necessary, deductions from them, which appear to be now largely lost sight of, even within the medical profession. As astronomy was a science before Schiaparelli, so cholera had a history before Robert Koch. Yet certain ideas are now by many persons taken for granted, which were long ago tried and found wanting; some of them as far back as 1831–32. A few cardinal questions may serve to bring the matter clearly in view.

Is cholera personally contagious? Only one *rationale* of its personal transmission has taken much hold of the minds of the medical profession: that of its being produced by the use of drinking-water infected by the stools of cholera-patients. There is much to sustain the opposition of Pettenkofer and others to this theory; all the facts asserted in its favor being explicable under the wider generalization that, in the presence of the epidemic cause, foul drinking-water is the most effective of all agencies in the propagation of cholera. Since the discovery by Koch of the asserted specificity of the comma-bacillus, the cholera-stool theory, and with it the contagion-idea altogether, has prevailed over everything else; bringing back a *wave* of rage for rigid quarantine, isolation, etc., under which we are now suffering more than ever before in this country. It is satisfactory to read in the editorial columns of THE MEDICAL NEWS (September 3, 1892) an allusion to the "disputed question of the causal relation of the so-called comma-bacillus." The affirmation by T. R. Lewis, Ray Lankester, and others of the identity of that microbe with one commonly found in the intestines, and even in the saliva, has been denied but not disproved.

That the cholera-stool transmission cannot be the exclusive mode of extension of cholera over the world is demonstrated by well-known facts. Look, for instance, at the immense zigzag leaps, or rather flights, taken by the epidemic in its migrations after entering Europe from Asia.

In 1831 cholera was in Warsaw in April; in Hungary from May to September; in St. Petersburg in June; in Moscow in September; in Berlin and Vienna first in August; Hamburg, October 11th, and Sunderland, England, October 26th; but not in Edinburgh and Glasgow until January, nor in London till February, 1832; in Dublin and Paris in March. On our continent, Quebec and Montreal had it in June, and later in the same month New

[1] Cholera: Facts and Conclusions as to its Nature, Prevention, and Treatment. By Henry Hartshorne, A.M., M.D., etc. J. B. Lippincott & Co., Philadelphia, 1866.

York and Albany; Philadelphia in July; Boston and Baltimore in August; by September it was present, with more or less virulence, in twelve States of the Union.

Not proposing to touch upon this history, except for the purpose of exemplification, it may be mentioned that in 1849 the first American cities attacked were: In January, Memphis and St. Louis; in May, Chicago, Buffalo, New York, and Philadelphia; in July, Baltimore had a very remarkably limited epidemic, affecting *one-half of its almshouse building*, the side whose windows overlooked a large and foul cesspool. England and Wales, besides Cologne and other Continental cities, were affected with the epidemic in 1848–49.

In 1865, Arabia and Egypt were severely visited in the spring; Constantinople, in July; then it spread over Europe. In 1866 it was in Egypt in June; thence it traversed Europe, and finally crossed the Atlantic, reaching New York, Philadelphia, and some other cities; it was our last cholera-epidemic. Since that time the most notable cholera-year in Europe has been 1884. Its ravages during that summer were particularly severe in Naples, 1200 deaths resulting from it in that city by the middle of September, and nearly 11,000 altogether in Italy.

The order of succession in the European cities in the present year has been, so far: Moscow, St. Petersburg, Paris, Hamburg, Havre, and Antwerp. How did cholera pass from St. Petersburg to Paris without, so to speak, stopping at stations by the way? Political sympathy, it is true, exists between Russia and France. The Psychical Society might suggest that it was communicated by telepathy; but sanitary science admits no such conception. Neither should it hesitate to recognize that such a transit could not be checked by any quarantine or *cordon militaire*. The latter measure was fully tried in Europe as long ago as 1831–32, with absolute failure; at Vienna, for example.

An *instantia crucis* against the dependence of the migration of cholera upon transmission by the channels of human intercourse occurred in France in 1884. The outbreak at Marseilles and Toulon in June of that year was made the occasion of a scrutinizing investigation. There was then no cholera elsewhere nearer than India. The Chief of the Naval Bureau of Health and the Admiralty Inspector, Rochard, declared officially that the disease was not brought by any vessels from elsewhere.

Dr. Brouardel made a special visit of inquiry to the infected cities. His conclusion, as reported to the Académie de Médecine, was published in a letter from Paris to the *London Times*, July 4, 1884. It was to the effect that the two sailors first taken ill had not been to sea for five years, and had no communication with other vessels; and that the same was true of a person who died of cholera at the Lycée in Marseilles, June 21st, about a week after the two sailors were attacked. Brouardel affirmed decidedly that (notwithstanding a charge made against a vessel from China, all on board of it being well after a voyage of forty-five days) it was impossible for any vessel to have brought the infection to Marseilles and Toulon. Yet 5000 deaths occurred in France, mostly in those two cities, in June, July, and August, 1884.

In the *American Journal of the Medical Sciences*, July, 1873, Dr. E. M. Estrazulas presented important testimony showing that an epidemic of cholera beginning in Paraguay in 1866 and continuing as an endemic for three years, could not have been imported by human intercourse, by ships or otherwise; the peculiar circumstances of the war with Brazil making this impossible.

As to the possibility of the personal contagion of cholera in any other way than through the entrance of the stools into drinking-water, some facts, now generally forgotten, but on record, may be here recalled. Dr. Austin Flint well contrasted cholera, in this respect, with typhus, smallpox, and scarlet fever.[1] In Moscow,[2] in 1831, 587 patients affected with cholera were admitted into a hospital containing 860 patients of other kinds, yet not one of the latter took the disease. Dr. Alison,[3] of Edinburgh, testified that in 1832, and in 1848–9, the dissecting-rooms of his city were almost exclusively supplied with cholera-subjects; but in neither year was there a single case of the disease among the numerous students attending in those rooms. How preposterous, in view of such evidence, seems the assertion by cable, September 3, 1892, that a porter in Berlin was attacked with cholera half an hour after carrying to the disinfecting chamber some linen of a traveller just arrived from Hamburg! If that were so, how could any survive who handled all the linen and put it into the chambers for disinfection?

Dr. Foy[4] and ten others in Warsaw, in 1831, inoculated themselves with the blood of cholera-patients, tasted their dejections, and inhaled their breaths, without taking the disease. Similar experiments were performed, with the same negative result, by surgeons and medical students at Moscow and Dantzic in 1832, and afterward by Lizars, Coste, Schmidt, Meyer, Marshall, and others. Dr. Houston in the *Richmond Medical Journal*, in 1866, stated that a man in Wheeling, Va., lay all night in the clothes of another who had just died of cholera, without evil consequences. How unreasonable, then, is the *panic* that leads some persons

[1] Practice of Medicine, p. 425.
[2] Brigham: History of Cholera, p. 324.
[3] British and Foreign Med.-chirurg. Rev., Jan. 1854, p. 22.
[4] Gazette Médicale, 1831.

to be afraid, almost or quite, of the shadow of anyone who has been near a place, or a vessel, infected with cholera. We read the following in a recent cable despatch from Europe:

"Hamburgers are treated like lepers elsewhere in Germany. Hotel-doors are shut in their faces, and it is impossible for them to obtain lodgings. Many of them have been known to alight from the railroad trains a few stations before reaching Berlin, and to come into the city by local trains, in order to avoid inspection. The authorities are endeavoring to stop this practice, but find it difficult to do so."

Let us hope that no such inhumanity will throw discredit upon civilization in this country.

Some other facts in the history of cholera, strangely ignored by many, need to be here recalled. In 1848 two emigrant ships, the *New York* and *Swanton*, left Havre at a time when there was no cholera there, the former going to New York and the latter to New Orleans. Both were attacked by cholera during the voyage; one when sixteen and the other when twenty-seven days out at sea.[1] If there had been cholera at Havre when they started no chance of so long a time of incubation for the disease could possibly be allowed by any, either of the older or of the more recent authorities.

In 1854, two of the Copes' line of packets, sailing from Liverpool for Philadelphia, at a time when there was no cholera in the former city, were attacked by cholera when many days, one of them, the *Tonawanda*, two weeks, out at sea. The latter vessel, after the disease had continued for several days, neared a large iceberg, which reduced the temperature of the air 30°. On the day before the iceberg was met the largest number of cases occurred; after that, no new one at all; the morbific cause appeared to have been frozen out. In April, 1866, two steamers, the *England* and the *Virginia*, left Liverpool, the former for Halifax and the latter for New York. One had on board 1202 passengers, chiefly emigrants; the other 1043, of whom 1029 were in the steerage. There was no cholera in Liverpool at that time; but both vessels were attacked, one five days and the other seven days from port. In all of these instances now mentioned, the only rational explanation is that the epidemic cause *passed over the ocean through the atmosphere*, independently of human conveyance.

On account of this manner of migration I propose a new term as applicable to epidemic cholera. It is *autoplanatic* (from αὐτός, self, and πλανάω, to wander); that is, wandering under causal conditions peculiar to itself, as distinguished from the conveyance of smallpox, scarlet fever, measles, etc., only through human intercourse.

In view of the facts alluded to, and others also which are particularly familiar to those who have resided in British India, it is not strange that many of those most fully and closely acquainted with cholera are convinced of the uselessness of personal quarantine as a measure for its exclusion anywhere. That view of it has been emphatically affirmed by such eminent authorities as Gavin Milroy and Sir Joseph Fayrer, in England; Stewart Clark, Payne, Bryden, and Cunningham (after thirty-three years' residence), in India; Cazalas, in France; Pettenkofer, in Germany, and Tommasi-Crudelli, in Italy.

On the other hand, *sanitary police* (including, as properly coming under that term, Dr. Joseph Holt's systematic disinfection of infected or suspected vessels) has had signal triumphs, showing that it is entitled to entire confidence for the prevention of cholera, always and everywhere. Notable instances of this might, were space here allowed for it, be narrated as occurring in the arrest of a very destructive epidemic of cholera in 1884, in Genoa,[1] by a change from a bad to a good and pure water-supply for the city; a similar result at Mendoza,[2] in South America, in 1887, following the provision by the government of Buenos Ayres of means for boiling all the drinking-water used by the inhabitants of the infected town; and the eradication of an epidemic occurring for the third time on the island of Takasima, Japan,[3] in 1887, by a thorough system of sanitary improvement, under charge of a company having in its employ a large number of laborers on the island.

Shortening the time of detention at quarantine to three, four, or five days, sufficient for thorough disinfection of all suspected *fomites*, is a most beneficial improvement on the old time forty days' imprisonment on board or at a Lazaretto. This is in the direction of scientific as well as humane progress. There is room for further progress in the same direction. It is within the power of the medical profession at the present time to render a great service to commerce, as well as to philanthropy, by urging the immense advantage of thorough sanitary police over any and all measures of quarantine, in the certain and perpetual prevention of epidemic cholera.

Port Physician.—Dr. Henry Leffmann has resigned the position of physician to the Port of Philadelphia, and Dr. E. O. Shakespeare has been appointed by Governor Pattison as his successor.

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[1] Dr. James Wynne, Report of Cholera in the United States; and Dr. Gavin Milroy, British and Foreign Medico-chirurgical Review, October, 1865.

[1] Philadelphia Times, October 6, 1884.
[2] Public Ledger, Philadelphia, 1887.
[3] Sanitary News, March 26, 1887.

RESULTS OF THE EMPLOYMENT OF TUBERCULIN AND ITS MODIFICATIONS AT THE ADIRONDACK COTTAGE SANITARIUM.[1]

BY E. L. TRUDEAU, M.D.,
OF SARANAC LAKE, N. Y.

THE principal interest that attaches to the cases to which I am about to draw attention lies in the fact that both the main factors concerned in the causation and development of tuberculosis were treated at the same time — a change of climate, a systematic, restful open-air life, feeding, and hygiene being invoked to efface that nutritive vice which constitutes susceptibility, while at the same time a method said to exercise a specific curative influence upon the existing pathologic processes was regularly applied.

We must usually content ourselves with placing our patients amid the most favorable environment attainable, the beneficial influence of which is primarily aimed at the existing malnutrition, and secondarily at the diseased processes; but even if we succeed in arresting the progress of the malady by these means, and in improving nutrition, the patient still carries for a long time an infectious, though dormant element, ready, like a smouldering fire, to break out, and sooner or later, again overcome the newly-acquired resistance. The ideal plan of treatment in tuberculosis would, therefore, be one that would enable us, while improving our patient's general condition, to stamp out this infectious element within his tissues, and thus obtain a more permanent cure. Koch's method, perhaps more than any of the many hitherto proposed, gave promise of doing this, and, although its extravagant claims have not been sustained by experience, and it has fallen into general disuse, some investigators, prominent among whom may be mentioned Klebs and Hunter, have clung to the belief that tuberculin contains a remedial element; that many of its injurious substances may be eliminated, and that even if the exaggerated specific virtues claimed for it cannot be verified by experience, we may, by following Koch's suggestion, ultimately obtain a product free from the dangers of tuberculin, yet capable of instituting in tubercle reparative changes of greater or less degree, leading to cure. I have sought, by a brief study of these cases, to obtain a certain amount of evidence as to the efficacy and dangers of Koch's tuberculin when exhibited to patients living under the most favorable surroundings attainable, and also as to the relative curative value and dangers of the modifications proposed by Hunter.

Are we in the future to cast these bacterial products aside and rely entirely on favorable environment alone? and are our efforts to be directed solely to improving nutrition, as in the past, or may we yet hope that with an enlarged knowledge of these complex products and their effects, a substance may yet be produced, free from danger to the patient and capable of staying, to a greater or less degree, the ravages of a disease against which our best-directed efforts are at present too often of no avail?

Treatment with Koch's Tuberculin.

For the sake of brevity, only the main features of the cases treated with tuberculin and the results obtained will be stated. Thirteen patients were treated at the Sanitarium with Koch's tuberculin for an average period of eleven months. The longest treatment was carried on for eighteen months; the shortest for four. The injections were discontinued for about six weeks at intervals of from two to three months; the doses employed were usually small; constitutional disturbance, as indicated by a temperature above 100° F., being avoided if possible. As the doses became large, the intervals between the injections were lengthened.

Diminished susceptibility to tuberculin was observed in most patients, as the result of previous treatment. At whatever stage of the disease they were classed, the cases were selected as presenting some favorable features, though all showed the rational and physical signs of pulmonary tuberculosis, and their expectoration contained bacilli. Six were classed as incipient, four as advanced, and three as far advanced. The results were three apparently cured; in three the disease was arrested; three were improved, and four steadily failed. Of the six incipient cases, three were apparently cured; two had their disease arrested, and one was improved. Of the four advanced cases, two were finally classed as arrested, and two failed. Of the three far-advanced cases, two were improved and one failed. The average gain in weight for nine patients was thirteen and one-quarter pounds; the average loss for three patients, three and three-quarter pounds. The complications were tuberculous inflammation of the ankle-joint once; fistula-in-ano once; hemoptysis twice; inflamed non-suppurating cervical glands once, and fresh pulmonary involvement twice.

These results, even in selected cases, are, on the whole, but little better than are usually obtained by the climatic and out-of-door plan alone. They illustrate, however, that in cases in which the nutrition is constantly maintained at a high standard, more can be expected of tuberculin than in those in which the reverse holds good. The improvement that almost invariably follows the injections in apyretic cases, and is so encouraging to patient and

[1] Read at the Ninth Annual Meeting of the American Climatological Association, held at Richfield Springs, June 23, 24, and 25, 1892.

physician, does not seem to be continuous, but ceases before a cure is effected. The dangers incident to the injections are undoubtedly greatly lessened by the use at first of small doses, by close supervision of the invalid's habits, and by good climatic and hygienic surroundings. They are, nevertheless, real, and some of the complications seem to have resulted from the treatment. Nevertheless, my impression was that in many cases, for a time at least, a distinct and specifically beneficial effect was produced, not so much on the general condition of the patient as on the malady itself; unfortunately, the cases most suitable for this treatment are precisely those in which recovery may be hoped for under the more tedious but much safer climatic and out-of-door plan, but in at least some of these under observation the cure was apparently hastened by the injections. Koch's method is certainly the first proposed that, judged by the physical signs, can produce a specific impression on tubercle, even though this impression may, without any apparent reason, often ultimately tend to an aggravation rather than a cure of the disease. Its uncertainty in this respect is its greatest drawback, and is no doubt due to its being a mixture of good and evil, a combination of many elements, both remedial and injurious, as yet but little studied or understood. In acute cases, with high fever, it has seemed but to hasten the inevitable end. Even in its crude state, it has undoubtedly a really beneficial influence, and in the apyretic types it is, in skilled hands, capable of inciting reparative processes in tuberculous tissues, and of even turning the tide in favor of an ultimate arrest or cure of the disease. Its uncertainty of action and its very evident dangers have seemed to me, however, to outweigh its curative influence, and, until further research has opened the way to safer treatment by this method, our sole dependence must still be placed on a favorable environment, and our best efforts continue to be directed to a thorough application of all measures that improve nutrition.

The names of Klebs and Hunter are most prominently associated with the idea of eliminating from tuberculin some of its dangerous elements, while retaining its curative ones. Klebs has seen fit to surround his work with the mystery that has hovered over this product from its discovery, and has given no exact data that would as yet enable others to produce his tuberculocidin or test his conclusions. Hunter, on the other hand, has given his methods in such clear and concise terms that no difficulty is experienced by the bacteriologist in preparing the substance he recommends. As a result of his researches, he has proposed two modifications of Koch's tuberculin, designated as B and CB, both of which bring about in lupus certain reparative changes, tending to cure, but unaccompanied by fever, and each varying greatly in the character and intensity of the local reaction it produces. Following Hunter's directions explicity, I found no difficulty in preparing in my laboratory from tuberculin the modifications he has proposed, and a set of experiments in animals to test their relative value and dangers was at once undertaken. The results have been given in a paper[1] read recently before the Association of American Physicians, the conclusions reached being first, that CB contains much less of the remedial element than tuberculin, and is apparently quite as dangerous; second, that modification B is as efficacious as tuberculin, and free from some of its dangers. In view of this evidence the use of CB was discontinued at the Sanitarium, and modification B alone tested.

Treatment with Hunter's Modification B.

Ten patients were treated at the Sanitarium with injections of this substance, the longest period during which the treatment was continuously administered being six months; the shortest three weeks, the average about five months. Four cases were classed as incipient, three as advanced, and three as far advanced. Though these patients were all selected for some favorable feature in their malady, they all had pulmonary tuberculosis and bacilli in their expectoration. The results were four apparently cured, the bacillus having disappeared from the expectoration of all, though one still showed in his scanty sputum a few elastic fibers. All of these were incipient cases. Of the three advanced cases the disease was arrested in one; one was improved; one was unimproved. In the three far advanced, one was improved and two were unimproved. The average gain for eight patients was six and three-quarter pounds; the loss for two patients five and one-half pounds. The complications were fistula-in-ano once, and once a prostatic swelling that disappeared without suppurating. No new areas of disease were developed in the lungs, though it undoubtedly progressed in those who remained unimproved by the treatment.

These results, though limited to so few cases, are certainly encouraging, and are better than are usually obtained by climatic and hygienic treatment alone; and the disappearance of the bacillus, even though it should prove to be temporary, is a fact of some significance. The gain in weight was not as marked as might have been expected, but may, in a measure, be explained by the comparatively short duration of the treatment. The modified tuberculin was first given in doses of 0.3 gram daily, and slowly and steadily increased as long as no rise of temperature occurred. It was carried finally to 0.7 or 0.8 gram. No general reaction at all took place in

[1] THE MEDICAL NEWS, September 3, 1892.

apyretic cases, and the local reaction was less marked than that which occurred after injections of tuberculin. The latter was nevertheless very perceptible, and the changes brought about in the diseased areas were the same as occur more slowly during the spontaneous arrest and cure of tuberculous lesions by natural methods. In two of the feverish cases, nothing but an apparent aggravation of all of the symptoms resulted from the injections, and these were promptly discontinued. In the two others the temperature gradually fell and marked improvement occurred. To anyone familiar with the irregular course and relapsing nature of pulmonary tuberculosis it is quite evident that no conclusion of value as to any special treatment for this disease can be reached in a few months, but as far as such a limited experience can prove anything, I have been favorably impressed with the freedom from ordinary complications and with the excellent results produced in so short a time by injections of this modified tuberculin. More extended research and clearer knowledge of the various elements, both beneficial and injurious, contained in bacterial products, as well as of their effects upon tuberculous animals, may in the future lead to still further improvement in this as yet tentative method of treatment. Specific medication, to whatever degree of perfection it may yet attain, will necessarily best be applied in conjunction with climatic and hygienic measures. At present its limitation to early and nearly apyretic cases seems indicated.

Hunter and Klebs have confined their labors entirely to the products of the tubercle-bacillus as found in Koch's tuberculin, and Hunter has apparently been partially successful in already obtaining an improved substance that causes much less fever and is evidently much less likely to bring about an aggravation of the disease and dangerous complications. Kinnicutt's experience in the wards of St. Luke's Hospital, and my own observations bearing both on the climatic aspect of the question and on experimental tuberculosis in the laboratory, are in accord thus far and point to the advantages of Hunter's modification B over crude tuberculin. In view, however, of the very evident limitations of our chemical knowledge of the true nature of bacterial products it has seemed to me that the facts already gained by a chemical study of the subject might be supplemented by further animal experimentation with pure cultures, as they can be grown by any bacteriologist, and that some of the mystery that has so long clung to these products might, in a measure, be dissipated by determining, first, whether liquid cultures of the tubercle-bacillus contain a remedial element of sufficient efficacy to cure tuberculosis anywhere and in any animal; second, whether this substance is to be found in the bacilli themselves or in the culture-medium in which they have developed. In the paper already referred to, evidence has been offered showing, first, that liquid cultures contain a remedial substance with which I have been able to cure inoculation-tuberculosis in the rabbit's eye; second, that this remedial element is to be found in the beef-broth in which the microbes have been developed; third, that a glycerin-extract of bacilli, freed by washing from the culture-medium that clings to them, tends, in animals, to favor rather than retard the spread of the disease. These facts are significant and encouraging; they indicate the need of further research, and that we may entertain a reasonable hope that a substance which may prove of decided remedial value in human tuberculosis may yet be obtained from the various products formed in artificial culture-media by the growth of the tubercle-bacillus, and it would seem that, if Koch's suggestion has been called a "shot in the dark," it was, nevertheless, well directed by a skilful hand, and needs, perhaps, but the light which further research may yet bring to make it effectual.

MEDICAL PROGRESS.

Vasomotor Ataxia.—COHEN (*Polyclinic*, vol. 1, No. 2, p. 85) expresses the view that a group of affections, including exophthalmic goiter, local syncope, local asphyxia, symmetrical gangrene, angio-neurotic edema, urticaria, some forms of asthma, perhaps myxedema and other rare and curious affections characterized by hypertrophy or atrophy of the thyroid gland, may be comprehended in the generic designation of vasomotor ataxia. These affections present in common phenomena dependent upon vascular contraction or relaxation. In many of these conditions blood may be found in the urine, sometimes in large quantities, at other times detectable only by microscopic examination; or there may be subcutaneous extravasations of blood, or hemorrhages may take place from mucous surfaces.

Artificial Immunity to Cholera.—To determine if the removal of the virulence of cholera-bacilli treated with an extract of the thymus gland, with preservation of the power of conferring immunity, depended upon the exposure to heat in the process of preparation or upon the action solely of the thymus extract, BRIEGER and WASSERMANN (*Deutsche medicin. Wochenschr.*, No. 31, p. 701) added scrapings from agar cultures of cholera-bacilli to the thymus extract, which they placed upon ice for several days, and with the product they were likewise able to confer immunity.

Protracted Labor and a Fourteen-pound Infant.—HARRIS (*Lancet*, No. 3596, p. 256) has reported the case of a sextipara, in which pregnancy was estimated to have lasted for three hundred and twenty-five days, a still-born female child, weighing fourteen pounds and measuring twenty-seven inches in length, being delivered. The woman had previously borne two other children weighing more than twelve pounds each.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

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1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, Including Postage in North America.

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SATURDAY, SEPTEMBER 10, 1892.

CHOLERA.

THE cholera is at our doors. The duty of the hour is to see that it does not gain entrance. Rigorous measures have been taken to prevent an invasion; and the timely and energetic action of the national, State, and municipal authorities is deserving of the warmest commendation. The coöperation of our Canadian neighbors, also, must be received with much satisfaction, as without it we should be exposed to a risk that it would be difficult entirely to remove.

The battle is, however, by no means won. The enemy has but been repulsed. His ways are most devious and insidious; and he will surely pass the lines if vigilance be for a moment or in a degree relaxed. So many influences are at work that the health and civic authorities must be on their guard lest they be moved by sentimental or specious motives to deviate an iota from their position of rigid exclusion. The carriers of the disease-poison must be kept out, be they persons or apparel or baggage or freight.

Great pecuniary loss may be entailed upon commerce by the necessary measures to be adopted, but a community or a nation must protect the lives of its inhabitants at any sacrifice. Nor can the quarantine restrictions be withdrawn until for some time after the danger of disease-importation has subsided; and with the withdrawal of the more rigid restrictions must come a careful scrutiny that not an isolated case enter and be the possible focus of an epidemic, the limits of which might exceed conception—for the danger is not confined to the present. If it were, there need be little occasion for alarm—for the low temperature of winter would soon bring an epidemic at this season to an end. The greater danger lies in the locking up of the germ-cause of the disease, under favorable conditions of warmth and moisture, in clothing and baggage, to be set free at some opportune moment at a later day, to inaugurate a work of incalculable devastation.

The best treatment of cholera, as of all diseases, and from which the most certain results can be expected, consists in the prophylaxis. With the cause of the disease known and avoidable, cholera becomes a preventable disease.

At other parts of THE NEWS will be found indicated by competent authorities the means and measures to be adopted in the treatment of the various phases of an epidemic of cholera, while the masterly paper of SHAKESPEARE must carry with it the conviction of profound insight.

There can be no question that the regulation of quarantine and of all that pertains thereto should be under the control of the central Government, so that in times of need adequate and uniform measures of protection may be speedily adopted and put into systematic, active operation. Under existing conditions, carelessness or ignorance or parsimony on the part of any marine port may render nugatory the salutary effect of the greatest vigilance on the part of all other ports.

The impending danger will not have been without fruit if it shall lead to legislation centralizing and strengthening the hygienic arm of the Government, and clearly defining and liberally extending the powers of those to whom is entrusted the responsible duty of protecting sixty-five millions of people from the inroads of foreign disease.

What applies to the body politic holds for the individual. The keynote of health is prophylaxis. Each person in a community must consider himself the conservator of the public welfare. It becomes the duty of the physician in especial, particularly in times of epidemics, to impress upon his clients the necessity for the observance of the strictest precautions and the early treatment of what would ordinarily be considered slight ailments.

Let us realize the danger of an invasion of cholera; let us strengthen our protective fortifications; let us render the soil unsuitable for successful implantation; and let us be prepared to root out the evil should it make its appearance in our midst; but, above all, let us not create unnecessary alarm.

LOCAL QUARANTINE FACILITIES.

IF the impending danger of cholera serves to awaken a reasonable interest on the part of the citizens of Pennsylvania in the unsatisfactory nature of the local quarantine arrangements, it will not be an unmixed evil. While the Board of Health is to be commended for the efforts it has promptly made to provide for the emergency, it must be admitted that the putting of new wine into old bottles is but a poor policy.

The present quarantine station for the port of Philadelphia was established about the beginning of this century, largely under the fear of yellow fever, which at that period visited northern ports almost every summer. The arrangements, regulations, etc., were adapted to an age when steam and telegraphs were unknown. In the lapse of a century the facilities of the station have become inadequate and unsatisfactory It is now out of the ship-channel and in the center of a growing population. Residences and places of resort adjoin its bounds. The average draft of water at its landings is so small that most vessels cannot approach within hundreds of yards, and all transfers of passengers and baggage must be made by lighters.

Efficient quarantine of the present day requires facilities for rapidly and safely discharging vessels of heavy draft and for housing and treating passengers. To compel a large number of persons to remain in the steerage of steamers is to invite extension of disease, and is, in fact, a sanitary crime.

The detention of passengers involves the absolute prevention of escape, which can only be secured by their transfer to an island or hospital-ship. Such isolation is also essential for the prevention of the spread of infection, for a location on the mainland can never be wholly disconnected from the surrounding territory, and escapes or unauthorized exits or entrances may easily occur.

The Delaware River presents several points at which such island-quarantine could be located. The best sites are rather far down, but there is considerable advantage in having such a station so far from the city proper that visits to it are rather difficult.

An important feature which is lacking in the present station is the separation of the general administrative departments from the places in which diseased or suspected persons are housed. A combination of the two departments is highly objectionable. A large portion of the work of a quarantine officer is routine inspection, and there is no propriety in locating his office and the quarters of his subordinates on the same territory with the house of detention and hospital. Any convenient place along the shore where the ship-channel approaches within a reasonable distance and affords space for temporary anchorage will suffice for the location of all buildings not required for the detention or treatment of the sick or suspected.

The island station need not be located close to the administrative station. Vessels ordered to discharge passengers, sick or well, can proceed without difficulty some miles up or down the river and return to convenient anchorage when such discharge is accomplished. Discharges of cargo in quarantine can be made in lighters, if necessary.

THE TREATMENT OF TYPHOID FEVER.

UNFORTUNATELY, the treatment of typhoid fever is a subject of never-ending interest. When we consider that typhoid fever is, in every sense of the term, *preventable*, the word "lamentable" scarcely seems adequate to describe the condition of affairs permitting its prevalence. When, again, we think of the interest aroused by the doubtful reports of cures by Pasteurism of an affection so rare as hydrophobia is in Philadelphia, it does seem strange that the constant and unanimous testimony of physicians concerning the causation of typhoid fever in this city should so long fall upon unheeding ears.

If one were to compute only the annual money-value of the lives lost, the time subtracted from labor, the interruption to business, and the expense incidental to a prolonged sickness requiring assiduous nursing, more or less drug-shop stuff, and skilled medical attendance, the sum-total would be found to represent the interest upon a capital more than sufficient to provide the pure water and efficient drainage, to the absence of which the undue prevalence of typhoid fever in the city of Philadelphia must be ascribed.

As yet there is no specific treatment for typhoid fever. Possibly there may be discovered in the

blood-serum of convalescents an anti-typho-toxine. Until then the treatment must be one of rational empiricism. While it is true that in the majority of cases an "armed expectancy" seems justifiable, yet there is a large number of cases in which death must occur unless there be active interference with the progress of the disease. Such interference best takes the shape of systematic cold-bathing.

There is no longer any room to doubt the correctness of the claim made by BRAND and his followers that the disappointments and failures experienced by various observers are due to their departure from BRAND'S method. The patient must be bathed systematically—that is to say, every third hour so long as the temperature manifests a tendency to exceed 102.2° F. (according to BARUCH, 103° F. in the rectum). The bathing must be bathing—*i. e.* "tubbing"—and not something else. The entire body, except the head, must be immersed in water which about three-fourths fills a tub sufficiently long, sufficiently broad, and sufficiently deep for its purpose.

The cold water must be cold and not hot. If at first it is necessary to introduce the patient into a bath of a temperature above 65° F., it should nevertheless be rapidly reduced to that figure, and after the first two or three applications, it should be 65° F. at the time the patient enters it. An air-cushion may be suspended over the head of the tub, as a pillow, and a water-cushion ring be used to support the nates. Before being placed in the tub, the patient's face should be sponged with ice-water, and while in the tub cold affusions to the head and shoulders should be kept up. The entire body, except the lower half of the abdomen, must be subjected to friction during the time the patient remains in the water.

After coming from the bath, he should be received in a linen sheet resting upon a warm blanket and hot bottles should be applied to the feet. The sheet is brought around the body, and, in order to prevent contact of wet cutaneous surfaces, is tucked in between the lower extremities and between the body and the arms. Over this the blanket is wrapped. If the temperature has been over 103° F., the patient remains in the sheet for five or six minutes. Otherwise he is immediately dried with the sheet and then with soft towels. Sleep usually follows the bath.

A little alcohol, preferably as red wine, should be given just before and just after bathing.

No medicine should be given during the treatment, except when urgently indicated for a definite purpose, such as emptying the bowels or keeping up the elimination of urine. The diet should of course be simple, unirritating, and nourishing, milk being preferable to anything else. Many of Brand's followers, however, both in Europe and America, give semi-solid food. Indeed, the ability to digest such food is claimed as one of the good effects of the bathing.

For private patients or for hospital patients this treatment is the best, unless the patient comes under care so late in the second week that the powers of reaction are greatly lowered. Good judgment is then more than ever necessary, and as a rule graduated baths and packs are to be substituted. So, too, some patients, even among those seen early, do not react well, and the method must be modified accordingly. With increasing experience the exceptional cases become fewer.

The results obtained at the German Hospital of Philadelphia for many years by J. SOLIS-COHEN, who bathed only the more severe cases, and more recently at the same hospital by J. C. WILSON, TRAU, and WOLFF, who followed Brand more closely, and the results obtained by S. BARUCH in the Mount Sinai Hospital, of New York, are absolutely convincing that the same success can be obtained in America as in Germany, by equally consistent and resolute practice.

Antipyretic drugs, and especially those of the coal-tar series, should never be used in typhoid fever. To this statement there is no exception. They reduce the temperature at the expense of the recuperative powers of the patient, and when they do not kill, they delay recovery by their interference with metabolism and with excretion. As we have again and again pointed out, cold bathing is not only antithermic but antifebrile, and it is synergistic with the natural processes of recovery. It exerts a notable influence upon nervous disturbances. This was especially marked in a case recently under observation at the Philadelphia Hospital. Not only did wild delirium almost instantly cease when the patient was placed in the tub, but, although delirium returned in a mild form, yet whenever the patient reëntered the water his mind became clear and remained clear during the bath and for nearly an hour afterward. On being asked how he felt, he replied, "I feel good when I'm in the bath." This, too, was a case that came under observation

in the second week, and concerning the outcome of which a dubious prognosis had seemed necessary.

When for any reason cold-bathing is impossible, frequent cold sponging, ice-rubbing, the cold wet-pack, cool spraying, binding cold cloths upon the wrists, applying ice-bags to the head, chest, abdomen, enemata of ice-water, and various other methods of utilizing cold may be employed as more or less efficient substitutes. They cannot, however, fully replace the bath.

Under these circumstances intestinal antisepsis should be attempted by the judicious use of drugs, such as calomel, beta-naphthol, naphthalin, salol, creasote, guaiacol benzoate, guaiacol salicylate, bismuth salicylate, zinc sulpho-carbolate, and the like. Our preference is for salol and bismuth salicylate, if there be a tendency to diarrhea. When there is constipation calomel is used, together with beta-naphthol or salol.

When the indications for turpentine (dry, glazed, or brown tongue, with tympanites) are present, terpin hydrate is sometimes combined with salol. Turpentine can certainly be used to advantage, as taught by GEORGE B. WOOD and H. C. WOOD, not only in the condition mentioned, which occurs late in the second or early in the third week, but after defervescence, when convalescence is delayed and there persists a diarrhea attributed by G. B. WOOD to ulceration that has failed to heal.

Strychnine is sometimes useful, especially toward the third week, when the heart is becoming enfeebled. Alcohol also finds its place at about this time.

Water must be given to drink freely, and nurses should be specially instructed not to wait for the patient to ask for it. Insomnia and delirium, almost unknown when patients are systematically bathed, may in other cases be treated with opium, bromide, or, if need be, chloral. Hyoscine hydrobromate hypodermatically is sometimes useful.

Of complications, hemorrhage from the bowel is often unnecessarily alarming. The majority of cases recover. In treatment, milk-diet should be temporarily suspended and some such aliment as beef-juice, beef-tea, or peptones, that can be absorbed from the stomach, be administered. Opium, with or without tannic or gallic acid, should be given, to splint the bowel. Turpentine, if tolerated, may be given in comparatively large doses in light emulsion. Cold applications to the abdomen are often useful. If cold bathing has been practised, the bath should be discontinued for a time, in order to fulfil the indication for rest.

Among other conditions demanding suspension or cessation of the cold bath are collapse, pleurisy, pericarditis, severe laryngitis, threatening edema, bedsores, intestinal perforation, and peritonitis. Such complications are, however, rare in cases that are bathed. Albuminuria from infectious nephritis is usually benefited by the diuresis following the bath, and would not furnish a counter-indication, unless it give rise to large effusions or anasarca. Should perforation occur, operation may be thought of. To be successful it must be prompt. The indications, counter-indications, and technique will be discussed in a future article.

EXCISION OF THE MEMBRANA TYMPANI, AND REMOVAL OF THE TWO LARGEST AUDITORY OSSICLES.

THIS operation is performed in two varieties of aural disease, viz., in chronic purulent otitis media and in chronic non-purulent otitis media. The patient must be anesthetized in order to save him pain and keep him still. Illumination of the ear is then best obtained by light from a six-volt electric lamp held by a band on the surgeon's forehead.

What can be accomplished by this operation?

In chronic purulent otitis media, excision of the necrotic membrana and ossicula, and of the granulation-tissue always present in these cases, removes a large quantity of obstructive and septic matter from the drum-space, promotes thereby drainage, and permits more direct and complete antisepsis and asepsis of the suppurating tympanic cavity, thus entirely checking or greatly diminishing the purulent discharge from the ear. This operation also favors a renewal of the muco-periosteum of the wall of the tympanic space when this has become carious, and improves the hearing greatly in some cases, in consequence of the more direct entrance of sound-waves to the stapes in the oval window, brought about by the removal of the mechanical hindrances already named. Furthermore, excision in chronic purulent otitis media, by the removal of septic matter from the upper and back part of the drum-cavity, prevents mastoid necrosis, sinus-thrombosis, and cerebral abscess.

In chronic non-suppurative catarrh of the middle ear, the membrana tympani is thickened and, with the ossicula, is retracted, and sometimes it has become adherent to the promontory. Retraction of

the membrana and the malleus brings about retraction of the incus and stapes, and impaction of the latter in the oval window. In many instances there are evidences of adhesions between the ossicles and the surrounding tympanic walls. This condition in the membrana tympani and ankylotic ossicles causes seventy-five per cent. of all cases of so-called chronic catarrhal deafness, with its frequent attendants of tinnitus aurium and aural vertigo. Very often these symptoms continue unabated even after the most elaborate treatment of the naso-pharynx and Eustachian tube. By the excision of the membrana tympani and the two largest ossicles in such cases of chronic non-suppurative catarrh of the middle ear, the hearing is sometimes improved, especially if there is no restitution of the membrana; but the entire and permanent relief from tinnitus and aural vertigo afforded by the surgical removal of the thickened and retracted membrana and ankylotic ossicula, and the consequent release of the impacted stapes, constitutes one of the most brilliant achievements of modern aural surgery.

REVIEWS.

TRANSACTIONS OF THE EIGHTH ANNUAL MEETING OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION, held at Washington, D. C., September 22, 23, 24 and 25, 1891. 8vo, pp. xvi, 276. Philadelphia: W. B. Saunders, 1892.

ALTHOUGH the freshness of the papers contained in this volume has suffered by the long delay usual to the publication of society proceedings, and by the fact that many of the papers have already been published elsewhere, the collection is an interesting and valuable one. While climate is an element of consideration in most of the papers, it is not so in all. As a matter of fact, the larger number of papers are devoted to consideration of diseases principally involving the air-passages. Out of twenty-nine papers it would be difficult to select some for consideration without tacitly reflecting upon the others, and it would not be possible within the limits of this review to give even the titles of all of the papers. Suffice it to say that the volume as a whole is a representative one that reflects credit upon the body from which it emanates.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK, FOR THE YEAR 1892. 8vo, pp. vii, 540. Published by the Society. Philadelphia: Wm. J. Dornan, 1892.

OF the fifty papers and addresses contained in this volume, fourteen consider purely surgical subjects, while fifteen more consider topics partly gynecologic, partly surgical; four are ophthalmic; seven appertain to general medicine, including therapeutics and pathology; three deal with subjects related to the nervous system; and the remainder consider dermatologic and miscellaneous subjects. There are also obituary notices of deceased members; tables of officers, members, and county societies; rules of eligibility to membership; and an appendix containing laws of New York of interest to the medical profession enacted by the Legislature of 1892.

One will be struck by the large number of papers devoted to surgical subjects. Among these is a notable series that deals with the management of genito-urinary calculus.

Dr. Elsner contributes a report of an interesting case of typhoid fever in which perforation occurred, with adhesive and protective peritonitis, death taking place from intestinal hemorrhage. Dr. Martindale contributes a paper on diphtheria, in which he details the method employed in the treatment of twenty-three cases, of which twenty-two terminated favorably, recovery taking place in from five to twelve days after the treatment was inaugurated. The atmosphere of the sick-room was saturated with the vapors of equal parts of North Carolina tar and spirits of turpentine.

The volume is well and tastefully printed and bound.

THE RETROSPECT OF MEDICINE: A HALF-YEARLY JOURNAL CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES. Edited by JAMES BRAITHWAITE, M.D. Lond., Obstetric Physician to the Leeds General Infirmary, etc. Vol. CV. January–June, 1892. Small 8vo, pp. xxii, 436. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited, 1892.

BRAITHWAITE has for fifty years furnished the profession in England and the United States an admirable summary of the best current medical literature. At the time of its first publication perhaps not more than two of our present weekly medical journals were in existence; now there are hundreds, and yet the *Retrospect* still holds its place. To survive against such odds is a severe test of merit.

The present volume maintains the reputation of its predecessors. The majority of the selections are from British writers, but a very fair representation is given to American writers, especially in the departments of surgery and gynecology, while in the Synopsis are to be found articles from German and French sources. Naturally the articles are very unequal in point of merit, but all are good, and taken together supply a large amount of valuable reading-matter.

THE MEDICAL AND DENTAL REGISTER-DIRECTORY AND INTELLIGENCER of Pennsylvania, New Jersey, and Delaware. Pp. 424. Philadelphia: George Keil, 1892.

This book contains lists of the National and State Medical and Dental Associations, with their officers and dates of meetings, of the Medical and Dental Colleges of the United States, Medical and Dental Laws, Hospitals, Homes, etc.; also the lists of Medical and Dental Practitioners, with their school and year of graduation, postoffice addresses, and office hours.

HYDROTHERAPY AT SARATOGA. A TREATISE ON NATURAL MINERAL WATERS. By J. A. IRWIN, M.A. Cambridge, A.M., M.D., Dublin, etc., pp. xv, 270. New York: Cassell Publishing Company, 1892.

THIS little book is devoted to a consideration of the therapeutic utility of mineral waters, and, as its name indicates, with especial reference to Saratoga. It is cleverly written and contains information that may prove both useful and interesting to the professional and the lay reader.

CORRESPONDENCE.

INTESTINAL DISORDERS OF INFANCY.

To the Editor of THE MEDICAL NEWS,

SIR: As intestinal diseases in children are now so common and cause so many deaths, permit me to give my experience in their treatment. Opium and the ordinary astringents I very seldom use, reserving them for the cases in which the discharges are so frequent and watery as to cause immediate danger. Creta preparata I seldom use, on account of its taste, and find that most cases do not need it. I bend my efforts toward restoring the discharges to their normal yellow, and find that in the vast majority of cases the diarrhea ceases of itself. If the milk curdles, if possible, I stop it temporarily or diminish the quantity, using, sometimes, lime-water. For food I prefer barley-water with white of egg and a little salt. I clear out the bowels with a mild laxative the first thing in most cases; then I give the following:

℞.—Pulv. acaciæ . . . . . ʒij.
Glycerini . . . . . ʒij.—M.
Ft. sol., adde
Bismuthi subcarb. . . . . ʒj.
Aquæ . . . . . q. s. ad ℥ij.—M.
Sig.—A teaspoonful every 1, 2, or 3 hours, as needed.

This is sufficient for mild cases, and will soon get the passages yellow or brown. The bismuth is, of course, an astringent, but it is far more. It checks the formation of gas, is antiseptic, is tonic to stomach and bowels, and analgesic and alterative. I greatly prefer the subcarbonate, as it is much the lighter, free from grit, and pleasanter.

If the passages are too light-colored, the foregoing is not sufficient. It will then be necessary to add a little mercury in some form—*e. g.*, half a grain or one grain of calomel. In obstinate cases I have often seen this in twenty-four hours cause the passages to become normal. Having been a student at Bellevue, I was long deterred from using mercurials, since that great authority, Professor J. Lewis Smith, was opposed to them. Used for a few hours, I believe that, in some cases, they will do what nothing else will. I prefer calomel, as it is tasteless; gray powder is more likely to cause vomiting. I use no sugar. Ninety-nine babies out of one hundred will take the foregoing readily.

If the passages are green, watery, and foul-smelling, a single small dose of calomel (from ¼ gr. to 1 gr.), with the bismuth mixture later on, will, as a rule, quickly restore the passages to their normal condition. Elixir of vitriol in barley-water is useful for thirst, for hunger, as an astringent, and as a tonic. When the stomach is mainly at fault, I often add pepsin, etc. The hot-water bag is generally sufficient for the pain.

In very bad cases I stop all food, and give a decoction of logwood, with elixir of vitriol, for a number of hours, until the child is better. In cholera infantum I have with success used morphine hypodermatically. I think the acacia very important on account of its local sedative effect on the gastro-intestinal mucous membrane. Hence I use large doses of it.

I have not averaged one death a year for several years. Very respectfully yours,

H. M. HASKELL, M.D.

PALMER, MICH.

A CASE OF ATROPINE-POISONING WITHOUT DILATATION OF THE PUPILS.

To the Editor of THE MEDICAL NEWS,

SIR: I recently had a most unusual experience in the case of a woman who had been delivered of a dead child. On the morning of the second day she complained of great pain in the breasts, due to the secretion of milk. In order to check this secretion a solution of atropine (four grains) in rose water (one ounce) was ordered to be applied on lint to the breasts, and to remain on until the pupils responded or the mouth became parched.

After it had been on for two hours, the nurse made an examination and found the eyes normal. The mouth was somewhat dry, but the patient stated that it had been dry all morning, and that she thought nothing of that.

The woman fell into a quiet sleep, and, the nurse having been called out, she was not wakened.

In about four hours from the time of application, in the midst of a sound sleep, the patient awakened with a feeling of great oppression and difficulty of breathing, tingling and numbness in the fingers and arms, as well as in the toes and legs. The extremities were very cold and sweating profusely. The mouth was in the same condition as before. On the following day the solution was again applied, with a result like that of the previous day. On both occasions the pupils were found to be normal, and the tongue in about the same condition as before the application.

I report this case because I have never heard or read of any case of atropine-poisoning in which the pupils did not respond. Yours truly,

JAS. H. MCCARTNEY, M.D.

CHUNG KING, CHINA.

BELLADONNA PLASTERS FOR MASTITIS.

To the Editor of THE MEDICAL NEWS.

SIR: I wish to call attention to a simple and easy method of arresting threatened abscess of the breast in the case of nursing women. This consists in the application to the inflamed breast of an ordinary belladonna porous plaster. In the two years during which I have employed this means there has not been an instance in which the pain and swelling were not reduced in from one to two hours after the plaster was applied. Of course there is nothing new in the use of belladonna for this purpose; indeed, it is the drug generally first thought of; but the method of application is easier, neater, and

cleaner than the use of an ointment, and safer and more certain than solutions of atropine—at least such has been my experience. A year ago, for instance, in a case of marked mastitis, with active febrile reaction, I used an atropine solution for some hours without apparent effect. Then, as the danger of suppuration was growing imminent, I substituted the belladonna plaster, giving great relief in less than an hour. In this instance, as the baby had died, the plaster was allowed to remain on the breast until the secretion of milk had entirely ceased. In another case, a few weeks after, in which the child lived, I allowed the plaster to remain on just long enough to lessen the hardness and reduce the pain so that the mother could endure to have a breast-pump applied every two hours, until the baby, which for some reason now refused to touch that breast, had changed its mind.

ERNEST B. SANGREE, M.D.
744 SOUTH FIFTEENTH STREET.

NEWS ITEMS.

Sanitary and Preventive Measures,—The Philadelphia Board of Health has issued the following instructions:

Thorough ventilation of dwellings is essential to the health of the occupants. Fresh air is a most important means of promoting and sustaining the healthy action of the body. Personal cleanliness, and cleanliness about dwellings and premises, should be most carefully observed. A source of danger to health is the decomposition of organic matter in and about houses. Cellars, areas, drains, cesspools, should be examined to see that they contain nothing to poison the air. Privy wells should be kept free from garbage and refuse matter of all kinds, and if they have been neglected, immediate attention should be directed to them. Damp cellars are injurious to health. The foul and humid air from them will permeate the house, in spite of every effort to prevent it. A remedy should at once be instituted. It is common habit to throw waste material, especially kitchen garbage, into the gutters and streets, where it decomposes and vitiates the atmosphere. This is an offense alike unjust to ourselves and to our neighbors.

For the prevention of disease, a good nutritious diet and regular habits of life are indispensable; temperance in all things is to be observed; and avoidance of all excesses is strictly insisted upon. Constant vigilance is necessary to guard against the many causes which at this season of the year have a tendency to disturb the stomach and bowels, thereby depressing the nervous system and diminishing the power to resist disease.

CLEANLINESS is the essential preventive of disease. Keep your houses, cellars, yards, vaults, and sinks clean, wherever it can be done. Whitewash the walls of your houses, cellars, fences, outhouses, shops, factories, storehouses, and every other place about your premises where dampness exists, and where mould or mildew forms. It keeps the walls dry, sweet, and clean, and prevents the accumulation of moisture, which promotes putrefaction, through the presence of living organims, which are thought by many to be a specific cause of disease. Avoid all collection of coal-ashes mixed with kitchen garbage, slops, stagnant water, and other semi-solid or liquid filth, anywhere about your premises.

"Sewers, house-drains, waste-pipes, and water-closets should be frequently *flushed* with water—let on the largest practical volume. Water-closets and house-drains should be *flushed* in this manner every day."

VENTILATION.—Your premises, particularly sleeping apartments and cellars, should be thoroughly ventilated. Ventilation is no less a purifier than is water. It cleanses by oxidizing and drying. Keep your houses open and your windows raised during the day in good weather, that they may have the full benefit of sunlight and a free circulation of pure air. Avoid the possibility of exposure to sudden changes of weather at night. When the weather is cool or rainy, be sure to keep a fire in the house in order to prevent dampness; in sparsely settled neighborhoods, or in the suburbs of the city, have a fire in the house the entire season.

DISINFECTANTS are important. They absorb impure exhalations, prevent decomposition, and destroy noxious gases, but in no instance should they be considered or employed as substitutes for a pure atmosphere obtained by free ventilation. "These are simply aids in restoring and preserving healthful purity, and not substitutes for cleanliness and pure air."

They may be employed in cellars, yards, privies, vaults, sinks, water-closets, sick-rooms, bed-pans, stables, and in other places about your premises, or wherever practicable, when offensive odors are emitted.

Quicklime may be employed as a purifier, to act as a dryer in damp apartments, and upon moist and hurtful effluvia. It may be strewn as dry lime on the earth or placed upon plates, or, better still, in the shape of whitewash upon the walls. In the latter form, the addition of a small quantity of carbolic acid adds to its efficiency.

Charcoal is a powerful oxidizing agent. It may be used as a deodorant and purifier. "The sole condition necessary is the free access of atmospheric air, which the charcoal uses in oxidizing the putrid miasms." It should be freely strewn on the floors of cellars, and all places which may be damp and moldy. It should always be used in a crushed and fresh state.

An excellent deodorizing compound may be made by mixing *one part of peat charcoal, one part of quicklime, and four parts of sand or gravel.*

Sulphate of Iron (Green Copperas), Sulphate of Zinc, and Sulphate of Copper.—Dissolve one or two pounds of any of these salts in a gallon of water, and use the solution to correct decomposing and offensive matters. *Sulphate of iron* is the cheapest of these substances. Eight or ten pounds of it dissolved in five or six gallons of warm water, with one pint of crude carbolic acid added, makes *the cheapest and one of the best disinfecting fluids for common use* in privies, water-closets, drains, and sewers.

Before the emptying of privies or cess-pools the contents should be disinfected. For effective disinfection a solution of two pounds of *sulphate of iron* (*copperas*) in a gallon of water, or of one pint of liquid *chloride of zinc* in a gallon of water (to each of which two ounces of strong carbolic acid has been added) should be used in the proportion of one pint to each cubic foot of contents. After thorough disinfection a quantity of either of these solutions should be poured down daily to keep the cess-pits in good condition. *Chloride of lime* in the proportion of one pound to a gallon of water may also be used.

DISINFECTION PROPER.—*Fire.* The burning of infectious material, infected clothing, etc., is an effectual way of disposing of it. Articles of little value which have been soiled with infectious material (especially old clothing and bedding) had better be burned.

Heat. Boiling for half an hour will destroy all known disease-germs. This is the cheapest and best way of disinfecting clothing and articles which are not injured by the ordinary operations of the laundry. *Moist heat* (steam) at 230° F. destroys germs of all kinds, even the most resistant spores, in twenty minutes.

Sulphur fumigation is an excellent method of purification. Place the sulphur in an iron dish, supported upon bricks in a wash-tub containing a little water; set it on fire by hot coals or with the aid of a spoonful of alcohol. All doors, windows, and other openings should be closed, and allowed to remain so at least twelve hours; the room should then be opened and well ventilated. Two pounds of sulphur will be required for a room ten feet square (1000 cubic feet of space). The amount should be increased for larger rooms in the same proportion.

Chloride of lime is one of the cheapest and most efficient of disinfectants. For the purpose of correcting offensive matters, and for utensils, sinks, water-closets, drains, bed-pans, etc., it may be mixed with water in the proportion of one pound to one gallon. Infected bed and body linen, towels, etc., which cannot be immediately boiled, may be disinfected by immersion in a solution of chloride of lime in the proportion of two ounces to the gallon of water, and left for four hours.

Corrosive sublimate is a powerful disinfectant, but on account of its *highly poisonous* quality should be used with the greatest care. Dissolve in water in the proportion of two drams to the gallon, and add one dram of permanganate of potash to give color to the solution. Label it carefully—POISON. Use one pint of this solution for the disinfection of each discharge in cholera, typhoid fever, etc., or for vomited matters. Leave in vessel ten or fifteen minutes before throwing into cesspool or water-closet. It will injure lead pipes if used constantly; it should not be placed in metal receptacles.

Carbolic acid is very useful for disinfecting soiled clothing, discharges from the bowels, vomited matters, etc., and for the general purposes of disinfection. A wineglassful (two ounces) of the pure liquid, well mixed with a quart of warm water, may be used in night-vessels, water-closets, sinks, or for wetting a sheet to hang in the doorway of a sick chamber; from half a wineglassful to one quart of warm water, for washing furniture, walls, etc.; two ounces to the gallon of water, for clothing, etc. One pint of strong carbolic acid added to five gallons of warm water should be occasionally poured into sinks and drains leading into sewers. One ounce of the crystals mixed with four pounds of slaked lime forms a good powder for covering over offensive heaps of filth or refuse that it is impossible or unwise to remove. Liquid acid diluted with two thousand times its bulk may be used for street sprinkling. *Carbolic acid soap* may be used for the hands.

"It appears to be characteristic of *cholera*, not only of the disease in its developed and alarming form, but equally of the slightest diarrhea which the epidemic can produce, that *all matters which the patient discharges from his stomach and bowels are infective;* that the patient's power of infecting other persons is represented almost or quite exclusively by those discharges; that they are comparatively non-infective at the moment they are discharged, but afterward, when undergoing decomposition, acquire their maximum infective power; and that if *they be cast away without previous disinfection*, they impart their own infective quality to the excremental matters with which they mingle in filth-sodden earth, or in depositories and conduits of filth, and to the effluvia which those excremental matters evolve; that if the infective material, by leakage or soakage from drains or cesspools, or otherwise, gets access even in the smallest quantity, directly, or through porous soil, *to wells* or other sources of *drinking-water*, it can infect, in the most dangerous manner, very large volumes of water; that the infective influence of the choleraic discharges attaches to whatever bedding, clothing, and like things that have been imbued with them, and renders these things, if not disinfected, capable of spreading the disease."—*Chief Medical Officer of Great Britain.*

PERSONAL DUTIES.—Observe strict cleanliness in your person and clothing. Bathe daily, if you have the convenience. If not, wash freely with cold water every day.

Change your undergarments daily, or as frequently as your circumstances will admit.

Be moral, regular in your habits of life, meals, exercise, and sleep.

Be careful to dress comfortably for the season, avoid the night air as much as possible, and when thus exposed put on an extra garment, and do not go into the night air when in a state of perspiration.

Be careful to avoid the use of alcoholic drinks. Do not suppose that their use will prevent the occurrence of disease. On the other hand, those who indulge in the custom are always fair subjects for disease, and when attacked the intemperate are particularly in a condition to offer feeble resistance.

Live temperately, live regularly, avoid all excesses in eating crude, raw, and indigestible food, especially cabbage, salad, cucumbers, and unripe fruits.

The boiling of milk and all water used for drinking purposes is a necessity.

Partake of well-cooked beef and mutton, rice well boiled, and avoid pastry and laxative fruit.

Take your meals at regular seasons, neither abstaining too long at a time, nor indulging too frequently. An overloaded stomach is as much to be dreaded as an empty one.

Avoid bodily fatigue and mental exhaustion. Lead a calm and quiet life. Let all exciting causes be avoided. If you depress or impair the vital forces, it is prejudicial to health. By excitement or violent exercise you increase the susceptibility of the system to disease.

During the prevalence of cholera, do not neglect even the slightest diarrhea, no matter how painless at first.

Discussion on Cholera.—The subject of cholera will be discussed at the meeting of the County Medical Society, to be held on September 14th. Drs. Shakespeare, Lee, Tyson, Hare, and Coplin are announced as participants in the discussion.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, SEPTEMBER 17, 1892. NO. 12.

ORIGINAL ARTICLES.

TUBERCULIN AND THE LIVING CELL:

An Inquiry as to How the One Aids the Other in the Fight Against Tuberculosis.[1]

BY CHARLES DENISON, A.M., M.D.,
OF DENVER, COLORADO.

THE wonderful discovery of the bacillus of tubercle had not been demonstrated a longer time than might be reasonably expected before its consequent —the specific cure of tuberculosis—was (it now appears, too hastily) given to the world by the same earnest student of nature, Robert Koch, of Berlin.

The history of these two great discoveries is interesting and familiar to every student of medical progress, and needs no repetition here. But what is most remarkable is the present attitude of the great mass of the medical profession toward this second discovery—tuberculin—now, nearly a year and a half after its having been given out for use in America. The failure of distinguished men in using the remedy, according to the rules laid down by its discoverer, seems to have led to a feeling almost universally hostile to its employment. Editorial comments in medical journals are sneering and derisive in tone; authors in sections of the American Medical Association refer to the "failure" of tuberculin as a positive conclusion; and writers in medical periodicals continue, as of yore, to pronounce the edicts of their own conclusion—that there is no such thing as a specific for tuberculosis.

A few weeks ago an Associated Press despatch went the rounds that a certain Dr. A. M. Brown had announced in a medical meeting in Cincinnati that Professor Koch had acknowledged to him personally that "tuberculin was a failure." Knowing that the statement must be false, I wrote to Professor Koch, and have just lately received his reply. It gives me great pleasure to be able to refute such a slander of one who is doing so much for his fellow-men. Dr. Koch writes me that neither he nor his assistants know Dr. A. M. Brown, of Cincinnati, who, however, like others, may have visited the laboratory. His statement that "much of his time was spent in the laboratory of Professor Koch is false, and when he says that I have told him that tuberculin is a failure he states an impertinent fabrication." Professor Koch goes on to say that he has "the same belief in tuberculin as in the beginning. If it is used in the early stages of tuberculosis it will be highly useful." His experience is that this effect is a cure, or *Heilung*. "It is essential to discover the disease in time, which is best done with this material. To any one," Koch concludes, "who has ever spoken to me about it, I have never made any different assertion than the foregoing."

To the great majority of persons one of the most convincing modes of argument that can be used with reference to tuberculin is to deride the physician who would give his patient a remedy that he would not take himself. To a logically disposed and naturally suspicious layman this assumptive argument is conclusive, and the fearful idea seems to find a favorable culture-field, not only among laymen, but among professional men, because of the incomplete knowledge of Nature's laws and the undeveloped state of bacteriologic science.

A considerable experience with tuberculin during the past fifteen months, under conditions well calculated to enable one to judge of its peculiar and best effects, warrants me in saying that I would not hesitate to employ the remedy in my own case if I should again find myself tuberculous and be convinced of its need, as I have been convinced in the cases in which I have used it. This so-called "failure" of Koch's lymph has not been essentially in tuberculin, but rather in the inability of the medical mind to comprehend the method and the conditions requisite for its success. Nevertheless, the *receiving* medical practitioner, especially if he be handicapped by incompetency, should not be compelled to bear the blame that belongs chiefly to the *giving* originator of such a theory. Let me here say, that in criticising the rules promulgated when this new method of treatment was given to the medical profession I do not wish even to seem to detract from the renown due to the great discoverer. It is glory enough for one man to have illuminated the dark regions of the etiology of tuberculosis, and to have set the medical world thinking and working as has Professor Koch.

However, a different application of Koch's discovery seems to be positively demanded, so that sources of error may be eliminated and a successful line of action be marked out for the largest possible number of medical men.

It was my own belief from the commencement

[1] Read at the Ninth Annual Meeting of the American Climatological Association, held at Richfield Springs, June 22, 23, and 24, 1892.

that all of Koch's rules for the use of tuberculin were tentative, and that only in the crucible of time and experience could it be determined what rules would be confirmed and for what ones substitution must be made. I believe I owe my own success largely to my independent mode of procedure. For instance, I commenced with smaller doses, took more time for the treatment than Koch recommended, opposed the confinement of patients, and insisted on regular and systematic out-door exercise.[1]

It is not my intention to detail minutely the physical condition and course of treatment of the forty-eight cases (which include all up to June 1st) in which I have employed tuberculin. A paper on "Tuberculin," read at the last annual meeting of the Colorado State Medical Society, contains a report of my first twenty cases. The results in five of these forty-eight cases properly ought not enter into the final conclusion, for to them tuberculin (from 1 to 5 milligrams) was given only for diagnostic purposes. Two of these five are dead; in them the diagnostic effect of the tuberculin showed the utter uselessness of any effort whatever to check the destructive process. Of the remaining forty-three cases, I know of only four that have died. One of these died of measles a month after the last treatment (mentioned in the previous report referred to). Another case, of laryngeal tuberculosis, with a large cavity in the lung, died four months after a short course. Another died at his Canadian home, of extensive involvement of the lungs, five or six months after cessation of treatment; and a fourth, much improved, though with considerable excavation, died suddenly with pulmonary hemorrhage a year after taking a partial course.

All the cases (twenty-three in number) in which the dose of thirty milligrams or over was reached are now living and furnish good illustrations of the value of the treatment. Undoubtedly some of these, as well as others in which the treatment has not been concluded, will sooner or later die of tuberculosis, for already one or two have given up the fight, both as to healthful living and treatment, because of indifference or such natural results as exhaustion or lung-contractions, with circulatory or respiratory embarrassment.

Yet, on the whole, the results have been good enough, especially for the thirteen cases classified as finished or cured, and I cannot see how anyone cognizant of the serious lesions existing could hope for better.

The following table gives a classification of these cases, all having pulmonary tuberculosis; one also had lupus; in all but three the sputum contained bacilli previously to treatment with tuberculin.

TABLE.

Total number of cases	48	
Average age at commencement	30½	years.
Number of males	31	
Number of females	17	
Number in first stage of the disease—infiltration (or bronchial)	15	
Number in second stage of the disease—softening (or catarrhal)	3	
Number in third stage of the disease—excavation	30	
Excavation as large or larger in area than a hen's egg in	13	cases.
Excavation or large bronchiectasis on both sides in	3	"
Excavation, small and on one side, in	17	"
The largest dose of tuberculin (two milligrams or less) was used in	3	"
From 2 to 10 milligrams was reached in	10	"
From 10 to 30 " "	12	"
From 30 to 50 " "	3	"
From 50 to 100 " "	13	"
Over 100 " "	7	"
Both lungs were affected in	42	"
Only one lung was affected in	6	"
Uncompleted cases, including some yet under treatment, with good results so far as they have gone	13	
Graduated (finished) cases at an average dose of 80 milligrams	13	
Average time these were under treatment	3½	months.

The thirty-five unfinished cases, including all of the others, were under treatment for an average length of two months. In ten, the most advanced in treatment of the unfinished cases, the average dose reached was 83⅓ milligrams; these were under treatment for four months. These ten, with a few cases perhaps wrongly included in the finished list, include the tolerant or partly healed cases with cavities, the dismissal of whom, to my mind, is yet questionable; that is, as to the time when that would be safe. The time when the bacilli will all be cleared out is necessarily uncertain, because some of them are always quite sure to be retained in a cavity beyond the time required for them to multiply. The remainder of the unfinished cases, including those in which tuberculin was used for diagnostic purposes only, twenty-five in number, were under treatment, on an average, over a month; the maximum dose averaged 10 milligrams. There are also included eight or ten that left off the treatment for various causes (see my former report, referred to, for examples), as well as a number of cases doing well, but still under treatment or taking what I call a midway rest in the course.

In only eight are the results recorded as unfavorable, chiefly on account of physical or diseased con-

[1] A suitable method for the recording of temperature, pulse, respiration, etc., by the patient himself was also a part of my plan, together with devising a new antiseptic hypodermatic syringe for giving tuberculin. The latter, Tiemann & Co., of New York, have made for me, having milligrams marked on one side of the barrel and minims on the other, and with an adjustable piston-head, constantly fed with oil from a reservoir in the piston-rod to prevent shrinkage and make it work easily. These, with the individualizing of each patient, and the discovery of the stethoscopic signs of reaction to tuberculin, have proved to be valuable aids to the success of the treatment.

ditions. This latter class includes some or all of four diagnostic cases recorded as too acute or too generally infected for treatment with tuberculin. The good general condition of those dismissed previously to six months ago speaks better for the permanency of the effects than I had anticipated. It is an open question yet, however, when a person once tuberculous is absolutely free from taint—that time alone can determine.

Among the important questions to be considered is:

The modus operandi of tuberculin in tuberculous tissues.

In my report on this subject to the Colorado State Medical Society last year, I advanced a theory of the action of tuberculin which I much wish bacteriologists would either refute or more fully elucidate than, so far as I am aware, has yet been done. This theory or explanation was based upon the power of living cells to repair injuries to themselves independently of other parts of our body. This idea not only recognizes the power of the tissues to reproduce their like, but also indicates an independent thought of Nature that takes some cognizance of the extent of the injury and the quality of the injuring agent. The directness with which the hypodermatically introduced antitoxine of tuberculosis, or whatever else it is in tuberculin that constitutes its active principle, goes to the highly susceptible tuberculously affected tissue and there stimulates a healing process, is strongly suggestive, if not proof-positive that there is a natural susceptibility of those affected cells, because they are thus diseased. This effort in the direction of healing is an exaggeration of any attempt at repair previously made—a function involving purpose and selection, not heretofore attributed to the ultimate divisions of the living body.

Histologists do not appear to have yet fully comprehended these functions of the living cell; yet some of us practical physicians are convinced, both by experience and by analogy, of certain specific effects of tuberculin, and invite biologists, histologists, and bacteriologists to explain the facts and physical evidences upon which our conviction is based. Is the demand unreasonable? The histologists can describe, as Richard Garnet, of London, has nicely done, what connective-tissue cells are; how, as nucleated corpuscles, they variously lie in a matrix, through the interstices or minute channels of which granular or wandering cells freely pass, on missions of supposed utility, and in which spaces the lymphatics find their terminal ramifications—all of which suggest an intimate relation between the lymphatic system, the white corpuscles of the blood, and the connective-tissue cells—in other words, the means of repair or the fibrous healing-process. Yet neither this histologist nor any other can tell any better than you or I how the life-principle in these cells enables them to change their form, to increase their number, and to exhibit a power of choice and self-direction of action according to the various demands made upon them, such as is observed in a higher order of living beings.

It may be that this contemplation of the living cell, rather than the great complexity of minute forces—the animal body—will bring us nearer to the desired solution of the mystery of *life*. It is only nearer, however; the goal is not reached. Here, in the living cell, followed down to the minutest subdivisions of which a powerful lens will allow us to judge, is *life*, existing separately and independently, as well as in combinations. These associations are either harmonious or in controversy with other microscopic existences. Here, in the region of the living cell, is waged an incessant, many-sided warfare between living *constructive* and equally living *destructive* cells, compared with which, as numbers go, the wars of nations are as nothing; and there is no cessation until either the allotted end of life of all these cells is reached, or is anticipated by the death of the individual.

As to any difficulty others may have in accepting my explanation of the special action of tuberculin on the living cell, if study and reflection have the same effect upon their minds as they have had upon mine, the operation will grow in simplicity and naturalness. It is quite possible, I will admit, that my own vision is influenced by the *fibroid* glasses through which I am inclined to look, in the explanation of Nature's choice of the healing process in the arrest of chronic pulmonary phthisis. This view is based upon the observation of nearly 4000 cases, under climatic and other conditions, which have shown a greater amount of Nature's reparative processes than I believe has been shown by any like collection of similar invalids. Besides, is it not best, if possible, to explain these intricate effects upon natural grounds? For instance, is it not preferable to hold the theory that the formation of vomicæ in the lungs, of anal fistulæ, of rectal ulcers, etc., in the tuberculous are corrective excreting processes, rather than meaningless diseased foci, not to mention the natural efforts at elimination as indicated by septic chills and fever, odorous perspiration and colliquative diarrhea? We look upon these as the outward expressions of an inward warfare between the myriads of bacilli and the greater or less number of living cells.

The explanation given seems to me to be on the same line with the recent efforts among distinguished German experimenters, Ehrlich, Kitasato, and others, to find in animals a natural opposing element to toxic principles. Their success in fixing upon the juice of the thymus and lymphatic glands

as attenuating or neutralizing the toxic principles of typhus, diphtheria, tetanus, etc., is to me a wonderful discovery, not so very unlike that of vaccination for smallpox; yet showing that the animal system is by Nature furnished with the means, could we only discover them, to combat "every ill that flesh is heir to."

Then if, as is true, the known and appreciated effects, in tuberculous tissue, of tuberculin when rightly administered differ very little from the natural processes of cure to which the profession has all along been trusting, that harmony of action is a good guide to be governed by. Physicians have always tried, and I fear they always will, to assume the credit that rightly belongs to a patient through an unrecognized *vis medicatrix naturæ*. One cannot intelligently and fairly compare the excellent descriptions of cured lesions in tuberculous lungs, in persons dying of other diseases (so well described in a paper lately read before the New York Academy of Medicine by Dr. H. P. Loomis), with the known effects of contraction in affected lung-tissue and shrinking of cavities due to the action of tuberculin, and not feel convinced that the two processes are so similar as to be practically alike—a natural method of healing.

For the purpose of a minuter description of the treatment with tuberculin I will divide the effects into three divisions: first, external, at the point of injection; second, general or systemic; third, internal lung-reactions. That no confusion with other kinds of reaction to tuberculin may be possible, I will confine this part of the description to the third division, or the *local effects* in tuberculous lung-tissues, and to the principal physical signs by which they are recognized. I will also separate the third division into three subdivisions: (1) hyperemia, (2) congestion, (3) necrosis. These are not stages, as in the progress of a disease like pneumonia, but different results due either to the size of the dose or to the susceptibility of the patient.

The first effect, that of *hyperemia* of the affected lung-tissue, is to be looked for in cases in which there exists moderate susceptibility, with encapsulated bacilli or slight tuberculous infiltration, or more advanced conditions if there be a response to very small doses of tuberculin. There is probably an increased flow of blood to the affected part, and also an attraction of leukocytes, as shown in the experiments of T. Mitchell Prudden, who found that when dead bacilli are injected into living tissue, the white blood-cells are attracted in great numbers to the point. The same thing happens if the bacilli are alive, according to Dr. Bennet S. Beach, of New York. Here is to be found the process of elongation of these attracted cells, and their conversion into connective-tissue elements for the ultimate purpose of strangulating or suffocating the imprisoned bacilli. This is sufficient, if kept up, to do more than simply arrest the tuberculous process. It inaugurates a cure.

The physical signs of this reactionary effect, as I think I was the first to point out in my last year's report, consist mainly in *a harsh, puerile, or an exaggerated broncho-vesicular breath-sound*, as heard with the stethoscope over the affected or reactionary area. This is an exaggeration of what was heard before the tuberculin reaction, or it is heard in localities in which the breath-sound was previously inaudible or entirely different. It is not an evanescent effect, but usually continues, though in a lessened or lessening degree, during the whole course of treatment.

The second division of the reaction to tuberculin, that of local *congestion*, is an exaggeration of the first effect, to the extent of more or less local inflammatory engorgement. The greater swarming of the leukocytes and constructive or defensive cells to the infected areas may be so marked as to somewhat impede the circulation of blood therein, and dyspnea will be caused, with or without an exalted or depressed state of the nervous system—a feverish exhilaration or perhaps a fear of impending suffocation or harm. Sometimes there is even slight hemoptysis. Now, the process of elimination, under certain conditions, is indicated by the local appearance of moist râles, which more or less obscure the usually dry condition characteristic of the reaction to tuberculin in the affected tissue. It is here that the danger of reinfection may threaten if these moist râles are found in inefficiently ventilated portions of the lung. If the pyrexia is high, and appears late, especially if it is prolonged at a high point on the following day, the indication of a septic state (which may be the ushering in of a necrotic process in a tuberculous area) is so strong that the greatest caution must be exercised lest the destruction of the most affected spot occur. Previously to this, with or without the advent of moist râles, there is likely to be an increase of expectoration, with increased throwing off of dead, or dead and live, bacilli. This is followed by a decided lessening of expectoration as well as of the contained bacilli. Percussion does not afford nearly as much information as does auscultation. However, if from imperfect lung-ventilation, with or without the presence of moist râles, an occluded region is made known by an increase of dulness on percussion, an increased resonance is quite sure to follow the opening up of the affected lung afterward, and the appearance of the drying and contracting stage, which is the expected later beneficial effect of tuberculin.

The third and worst effect of tuberculin is *necrosis*, which I claim should always be avoided if possible.

The increased number of cells and cell-elements that crowd around the tuberculous nodules, or into and around affected areas, furnish a new, highly inflammatory substance, largely composed of giant or nucleated cells. By the multiplication and breaking down of these the circulation is shut off on the one side, the tuberculous tissue being on the other; the result is death of that tissue, or *necrosis*. The enemy and the containing tissue have both been destroyed together in the general shrinkage and sloughing that have thus been inaugurated. An enormous number of bacilli may then be thrown off in the sputum, which may also contain elastic fibers, shreds of lung-tissue, and pus-cells.

Meantime, Nature's effort at repair, if possible, corresponds with the extent of the injury in the affected area, and her process of infiltration and fibrous contraction is inaugurated, which may be the cure of the patient so far as that affected spot is concerned. However, the risk and shock to the individual, the deprivation of breathing-space, or involvement of other tissues, may be too great, and a more conservative and waiting plan of treatment ought to be followed. It should be borne in mind that all three of these degrees of effects may exist at the same time in different parts of the same lung.

The success of treatment with tuberculin rests upon many precautions, or upon favorable conditions to be secured by the physician in charge. Among these are: 1. The proper selection of cases. 2. As thorough a knowledge as possible of the physical condition. 3. The natural resistance of the tissue. 4. The intensity and extent of the tuberculous infection; and 5. The gradation of the dose.

The selection of cases suitable for treatment with tuberculin is a most important consideration. It is by exclusion of unfavorable conditions that mistakes are to be avoided. Besides, here in Colorado, I do not think it necessary to subject patients to this additional trouble, anxiety, and expense, who are so slightly affected and otherwise so well suited to the climatic cure, that they are likely to recover anyway. So it happens that I have refused or decided not to employ tuberculin in treatment in probably twice as many cases as those in which I have employed it.

An important consideration is the ventilation of the affected lung. For, if it be true, as the experimenters state, that in culture-experiments five or six days elapse before tubercle-bacilli begin to be reproduced, then when the bacilli are squeezed or carried out from the tissues into the lung-spaces or bronchial tract they must be removed by expectoration before the expiration of that time, or reinfection will occur. It would be better to leave the bacilli encapsulated than not to get rid of them when they are set free. If the action of tuberculin is expected to take place around the root of the lung or large bronchial tubes, the regions beyond may become convenient receptacles for the infectious tuberculous exudates when the contracting or healing process occurs in response to tuberculin. Thus, this question of lung-ventilation is, to my mind, second to no other, and it is a consideration that, it will be acknowledged, gives a great advantage to us who practise in Colorado, where the air is from a sixth to a third rarefied.

Now, the question of ventilation, together with the extent and nature of the infection and its results, fibroid or otherwise, can be so well determined that a thorough diagnostician can have confidence in his decisions as to the use of tuberculin. In addition to the usual proofs of a careful physical examination, strengthened by the clinical history of the case and the microscopic examination of the sputum, much direct information is to be gained by the use of the spirometer and manometer, in conjunction with the measurements of the respiratory movements of the right and left sides of the thorax respectively. The manometer gives the air-pressure that the air-cells will stand, and in a measure indicates the elastic tension, or amount of fibroid or connective-tissue healing that exists; while the spirometer tells the actual capacity of the lungs, which ought to be nearly in an inverse ratio to the amount of fibroid deposit, and also to the extent of the usually accompanying pleuritic adhesions. The rule that I have formulated for determining the respective ventilations of the two lungs (right and left), and which I always mentally follow in my own examinations, is as follows:

Suppose the normal spirometric record of a patient is only one half of what it should be for his height, and the expansions of the two sides are as one to two, then, if no defect or disease is noted in the better lung, it is well to assume that the lack of ventilation in the other lung is almost complete—that is, the half that is done is nearly all due to the good lung. For other variations in the bilateral measurements this rule can be correspondingly altered.

When it happens, as a result of the reaction to tuberculin, that the ventilation of a lung is defective, then, besides temporarily discontinuing the injections, there are mechanical means that will be sufficient to open up and clear out the suffocated regions. Among these are the use of the lung-compressor or emphysema-jacket,[1] the pneumatic cabinet, massage of the chest, horseback riding, and systematic

[1] This is an instrument I have lately devised for promoting the elasticity in overstretched and suffocated air-spaces, which, with my own spirometer and a new manometer that I have lately completed, Messrs. Truax, Greene & Co., of Chicago, are preparing to put on the market.

arm-exercise in the open air. I do not fear the result of this advice to take moderate and systematic exercise, for I have previously taken the precaution in these cases to determine that Nature has already commenced, through the fibroid process, to strengthen the affected tissues; and I have always refused (except for diagnostic purposes) to give tuberculin, unless the patient could come to my office. I long ago gave up the idea of keeping these patients penned up in a single building or sanitarium, as has been the custom in Germany. In Denver they spend much of the time on the splendid system of rapid-transit lines that radiate in all directions to the suburbs, and some have lived in adjoining towns, and come to the city for treatment from every two to five days, as directed. I am aware that in emphasizing the importance of exercise I am liable to clash with the views of many members of this Society. Several papers have been read the tone of which seems to me unnecessarily fearful of the results of exercise. A discussion of the question of "Rest in the Treatment of Consumption," at Colorado Springs, reported not long since in the *Climatologist*, appeared to be so one-sided as to give the impression that there was no opposition whatever among that excellent group of physicians to such a stand-still policy. In the use of tuberculin it will never do. I would rather run the risk of over-action, or even hemorrhage from exercise, than, because of the lack of it, allow the dead or live bacilli to remain and reinfect the system.

Another important point to decide before commencing injections of tuberculin is that there exists *only* the fever of tuberculosis, and not, in addition, the septic-pyemic fever that attends the breaking-down of lung-tissue and the extensive caseation of tubercles. There is no reason to expect tuberculin to do any good in this second form of fever, but, on the contrary, aggravation of the previously existing septic state might naturally be expected, for, as Klebs, of Zurich, in a letter lately received, expresses it: "You will also have fever by the introduction of pyrogenic substances from out the destroyed bacilli; but this fever is very well supported, and will cease if all or the greater number of the bacilli are destroyed." The want of an appreciation of this fact may be at the bottom of the fear that so largely pervades the medical mind—*i. e.*, a suspicion that tuberculin contains proteid substances that will themselves cause the septic fever.

I believe that this fear is unwarranted, and springs from the non-recognition of the previously existing septic state; in other words, tuberculin is a better diagnostician than its too suspicious professional critic. The natural result of this state of affairs is the demand that an effort be made to eliminate these harmful ingredients, supposed to be contained in tuberculin. Consequently, the chemistry of the extract is minutely gone into, and, according to Klebs, by treating it with platinum chloride, and filtering through alcohol, the alkaloid and harmful ingredients are thought to be separated, and the albuminoids, supposed to contain all the active healing principle, are saved, and finally constitute two and a half per cent. of the original tuberculin. I have not yet used any of this "tuberculocidin" of Klebs, nor Hunter's similar modification of tuberculin, for I do not need them, as I do not hold the same belief as they do as to the necessity of their procedures, and further, because I have a better guide than the usual fever-range, in the stethoscopic signs of reaction to tuberculin. Besides, Klebs's results with his tuberculocidin are no better than, if as good as, my own with tuberculin.

Dr. Libbertz writes me that tuberculin has been made constantly uniform from the commencement. Though the results in Dr. Kinnicutt's[1] cases, treated with Hunter's modification, were in the main favorable, I can make no use of them, because a constant stated dose was given at regular intervals, which is quite different from my plan—*i. e.*, the gradually increasing dosage for a given desired effect. I wish that we knew more about the composition of tuberculin and the chemistry of these substances proposed as substitutes. As the case now stands, I am rather inclined to agree with Koch, who says that much of the active principle of tuberculin goes through the dialyzer in making Hunter's modification, and, therefore, I conclude that both Hunter and Klebs are using a much diluted tuberculin—just as they ought to do, anyway.

Dr. Klebs claims that his tuberculocidin has an effect additional to that of tuberculin, in that it kills the tubercle-bacilli. The claim cannot be allowed, because others (Dr. Beach, of New York, for instance) have found the same destroying influence to belong to tuberculin, the proportion of the dead bacilli thrown off in sputum being variously estimated up to over 80 per cent. of the whole number. If Koch's extract exerts an injurious septic influence, certainly a patient of mine who has taken the injections for more than a year ought to have shown it by this time. This is a case of laryngeal tuberculosis in the third stage, fully reported in the *University Medical Magazine* for March, 1892. I gave him 180 milligrams on the Sunday before I left home. He always asks for a large dose as he comes on his weekly visit, saying that he feels better if he perceives some appreciable effect of the injection.

After all, perhaps, it is not strange that a fear of the consequences should generally exist among medical men, when we consider that the destructive

[1] New York Medical Record, May 21, 1892.

process of pus-formation and the constructive process of repair—connective-tissue growth—are so near each other, both originating in different degrees of inflammation under varying conditions. This thought grows in importance if it be considered that tuberculin, if given as Koch first directed, to produce necrosis, may favor this destructive process—as it will if given in too large doses, while, if given in smaller and appropriate doses, the effect will be constructive, with a return to a state of health.

The influence that tuberculin may have upon these processes is most interesting. The question has been raised by Prof. W. T. Councilman[1] whether or not the fibrinous exudation in the alveoli around the tubercle or in its neighborhood is a part of the tuberculous process? He considers that it is, because bacilli are found in this contigubus inflammatory tissue. Why should we not rather look at it as the natural reparative process excited by the central tuberculosis, the purpose of the fibroid process being the limitation of this destructive tendency? At the same time we will admit that the extension of tuberculous infection may be temporarily favored by the stasis of blood in this border-ground of the contest that is going on. In tubercles with centers undergoing caseation the fibrous tissue seems to be antagonistic to caseation—*i. e.*, the more there is of the one, the less there is of the other; sometimes a caseous mass resulting, and sometimes a fibrous nodule with a shrivelled nucleus at its center. In these nodules Cornil and Ranvier found bloodvessels, and rightly reasoned that in them, and not in the caseous nodules without vessels, the cells retain their vitality to resist the tuberculous process. Is it not quite possible that tuberculin acts as a special stimulant to these fighting cells, and that the decidedly diagnostic sign of the commencing fibroid process under treatment with tuberculin is proof that both blood-circulation and connective-tissue formation are advancing into the lines of the enemy—*i. e.*, the tuberculous stronghold?

Councilman says that the tubercle-bacilli are taken into the tissues from the communicating air-spaces by the white corpuscles, and Koch also claims that these white corpuscles are changed into epithelioid cells by the action of the bacilli contained in them. If this is so, why is it not reasonable to infer that the process of cure is the reverse of the foregoing—*i. e.*, that the contracting influence under the reactions of tuberculin leads to the breaking up and subdivision of these giant and epithelioid cells? These, the natural homes or protecting envelopes of the bacilli, after subdivision and still bearing their bacilli with them, become the exudative cells, which sometimes crowd the air-spaces in the region presenting a local reaction to tuberculin. I have noticed that this connective-tissue increase, the most prominent feature of the healing process that takes place in connection with the employment of tuberculin, is likely to be accompanied with or preceded by an increase in this exudation. Does it not appear reasonable that this stage in the effect of tuberculin should be known and watched by the attending physician with the greatest care and caution!

Dr. Armand Ruffer, of the British Institute of Preventive Medicine, has lately asserted that it is the poisons excreted in the tissues by infectious microörganisms that attract the leukocytes to battle with the germs, and that the reason that in certain virulent cases this attraction is lost and the work of the defending leukocytes is ineffectual or feeble, is that these toxic principles are too generally distributed in the system—*i. e.*, in the blood-current, as well as localized in the tissues. Dr. Sternberg, of the U. S. Army, calls attention to the fact that Tizzoni and Centanni, experimenting upon infected guinea-pigs with Koch's lymph, stated that recovery is due to the development of an antitoxine that neutralizes the tuberculous virus. They seem to conclude that the antitoxine is developed in the tissues in consequence of the injection. Whether this is so, or if the antitoxine already exists in the tuberculin, as it is more reasonable to believe, further observation will have to decide. The influence is certainly specific upon tuberculous tissue. I could illustrate this by showing the gradual shrinkage of tuberculous glands on the side of the neck in a young woman among the unfinished cases in my list.

I have conceived the idea that perhaps the nodules that we have been accustomed to call tubercles are simply Nature's prison-vaults for the incarceration of the offensive bacilli; and, until someone proves the contrary, I shall not cease to suspect that the bacilli, when thus imprisoned, are deprived of nutriment for growth, or, perhaps, by pressure are prevented from multiplying, and that this perfected imprisonment constitutes the completeness of the state of "arrest" of pulmonary tuberculosis, whether by climate or otherwise, as heretofore accepted by the medical profession. Even more, the *policeman* function of the leukocytes, "the free lances of the body," may yet be shown to include the arrest of these bacillary intruders and detention within their own bodies until, having the power to do so, they can call to their aid those constructive and repairing carpenters—the connective-tissue cells—to build about themselves and their captured bacilli the strongholds intended for their permanent imprisonment.

If the foregoing figure is a reasonable representa-

[1] Article on "Tuberculosis," in Reference Handbook of the Medical Sciences.

tion of this inward struggle constantly going on in many of the human race, how very like a punishment for any future sins of omission or commission on the part of the tuberculous patient, as to the laws of healthful living, is the escape and multiplication in the body of these convict bacilli when once the resistance of the tissues is relaxed from lack of nutrition or nerve-support.

The difference is so great between tuberculosis in arrest, with the natural resistance of the tissues everywhere able to maintain their integrity, and tuberculosis of the lungs under full headway, with the living cells deprived of their power of successful resistance, as only to be faintly imagined by one thinking of the computations of bacteriologists. They compute that in this latter condition over twenty-one million bacilli are thrown off in the sputum of an individual each twenty-four hours, or fifteen thousand per minute. I do not know enough of the methods of division or growth of these germs to compute how many millions of bacilli yet remain in such a body, but this I do know, that that remedy must be a true specific for tuberculosis which bids so fair as tuberculin does to forestall such havoc, and not only aids in the arrest of the tuberculosis, but also supports the living cell in the supreme effort to eradicate the cause from the body. In view of the comparative failure of the usual internal antiseptic treatment of pulmonary tuberculosis by trying to saturate the system with supposed blood-purifiers, or the endeavors to reach the enemy by the use of germicidal inhalants, the physician of the future must come to the rescue of the living cell. In its fight against tuberculosis he will find, in rightly selected cases, the *antitoxine of tuberculin* an unrivalled aid to the best combination of climatic attributes, with sunshine, elevation, and dryness in the foreground, so that with every other attainable aid added, integrity and health may be preserved to the living cell.

PREVENTIVE MEASURES FOR THE INDIVIDUAL DURING TIMES OF ACTUAL OR THREATENED PREVALENCE OF CHOLERA.[1]

BY E. O. SHAKESPEARE, M.D.,
OF PHILADELPHIA.

I HAVE recently advanced elsewhere[2] some reasons why "the General Government should be supreme in the control of quarantine at all our frontiers," in the effort to keep cholera out of this country. I do not contend that State or municipal quarantine should be abandoned. On the contrary, even with the establishment of an efficient and judicious general quarantine as an outer line of defence and protection to the *general welfare*, provided and maintained at the expense of, and controlled by, the General Government, without exaction of port-fees, the local, State, or municipal quarantine can well serve an extremely useful purpose as a powerful adjunct in protecting the health of the locality against the introduction and dissemination of infectious diseases, and may be supported as in the present manner. What I now urge, and have earnestly advocated, is that, for the protection of the *general welfare*, for which Congress, in the same article of the Constitution that grants it power to guard the country from the attacks of a common enemy and the invasion of a foreign foe is authorized to provide, the General Government, especially in such a dangerous juncture as the present, should be active, provident, vigilant, and supreme.

I am requested by the Directors of the Philadelphia County Medical Society to express my views concerning the question of "preventive measures for the individual during times of actual or threatened prevalence of cholera," and I cheerfully respond, as any other physician would, prompted by the hope of rendering some useful service to my fellow-citizens.

As the purpose of this communication is, to a great part, for popular instruction, I shall avoid as much as possible entering into detailed arguments and the discussion of abstruse theories, limiting myself mainly to an orderly arrangement of conclusions, well established, based upon the evidences to be found in my recent *Report on Cholera in Europe and India*, and in other publications relating to cholera that have appeared in various parts of the world since 1883.

In my opinion, Asiatic cholera, highly infectious and frightfully mortal as it usually is when it obtains a foothold amid ignorance, poverty, and squalor, is, fortunately—even in such a favorite locality—of all the dangerous epidemic diseases the most easily and certainly avoided by the individual, if only the proper precautions be constantly and scrupulously observed. Cholera-victims may be lived with, handled, nursed and treated, with absolute impunity if these *precautions be never once forgotten or neglected.* The cholera-poison does not infect the air even of the sick-room; it cannot be inspired with the breath; it does not enter through the skin, or through cuts, sores, or abrasions of the body. It enters through the stomach only, and assails by way of the intestinal canal.

In the human being it is in the intestinal canal only that this infectious material multiplies enormously, sometimes with extreme rapidity, generating a chemical poison that attacks and destroys the lining of the epithelium of the intestines—caus-

[1] Read at the meeting of the Philadelphia County Medical Society, held September 14, 1892.

[2] THE MEDICAL NEWS, September 10, 1892.

ing extensive flakes of the latter to be thrown off, while the raw surface thus exposed exudes great quantities of the fluids of the blood, constituting together the so-called rice-water discharges, frequently so rapid and copious—and which meanwhile is thence absorbed into the system, to play a formidable rôle in a direct and vicious attack upon the kidneys, heart, and nervous system. This infectious principle has been proved to be the so-called cholera-bacillus—an extremely minute vegetable parasite that multiplies in enormous numbers and with incalculable rapidity in the intestinal canal of the victim. Every drop of the evacuation of the bowels and of the stomach of a person who is suffering with Asiatic cholera contains thousands of these infectious parasites. These discharges and everything soiled or contaminated by them are therefore highly infectious and very dangerous. Cholera is never generated by fright, ill-health or constitutional weakness, filth, starvation, or anything else, unless this infectious principle be first introduced into the stomach. Without the actual presence and multiplication of the cholera-bacillus in the intestinal canal, an attack of Asiatic cholera cannot occur.

What, then, are the rational and reliable "preventive measures for the individual during times of actual or threatened prevalence of cholera?" They are crystallized in four words—*prompt isolation; thorough disinfection.*

Inasmuch as the safety not only of the health and of the trade of the locality and its immediate surroundings are involved, but also of a great State, and sometimes of nations in communication with it, are seriously threatened by the escape and spread of the infectious principle elaborated in and discharged from the intestines of the person suffering from an attack of Asiatic cholera, skilful and *constant attendance* is imperatively called for, and *should be provided at the public expense.*

Furthermore, that same public has a paramount interest and absolute right to be *assured* that every rational precaution against the spread and dissemination of the infectious agent be scrupulously and conscientiously enforced. This is tantamount to saying that the care of the attacked and of the dwelling, as well as the custody or close surveillance of all persons associated or in communication with him or it, should be under the strict control and direction of the jeopardized public, *through its own intelligent and responsible agents.*

The prevention of the spread of infection—of such enormous importance to the public—should, under no circumstances whatever, be entrusted in any degree to the ignorance or carelessness or conflicting interests of the inmates of the infected dwelling; neither should it be left to the chance of uncertainty through the incompetence or neglect or whimsical notions or personal interests or lack of authority of the private physician. Of course this means temporary invasion of the private rights and restriction of the personal liberty of a few individuals—whose own security, however, is thereby enhanced—but the public safety demands a temporary sacrifice of private rights under these circumstances, and there should be no hesitation or vacillation in requiring it.

I do not mean to say by this that the family physician called in attendance by the sufferer should be excluded from the performance of his private duties; on the contrary, he should feel, in his capacity as an individual guardian of the interests of the public health confided to his care, that he also should be prompt and careful in the discharge of duty to his patient, and he should at the same time keenly appreciate his relations as well to the inmates of the threatened household as also to the general public. One of the first things which the family physician should do in the discovery of a patient who is suffering with symptoms that warrant any suspicion that the case may be either a commencing or a fully developed attack of Asiatic cholera is that, immediately he leaves the house, he should promptly send notification to the Board of Health, without any delay whatever.

So long as there are in the town or city threatened *only a few scattered cases of the disease*, the most strenuous efforts should be made to prevent the establishment even of a localized epidemic. The daily work of the private physician, if he be sufficiently watchful for the discovery of such scattered cases, will be a great adjunct to the efforts made by public health-officers in stamping out the infection before there is any chance that it may spread throughout the community.

Under the circumstances surrounding us at present, with cholera in the port of New York and the possibility of its arrival by any ship proceeding from Europe with emigrants on board, there is no little danger, as experience has so often proved, that the infectious germs may escape quarantine-inspection, and proceed with the ship's inhabitants, released from quarantine, to their ultimate destinations, and produce there the commencement of an epidemic.

It is a well-known fact that looseness of the bowels and other disturbances of the digestive apparatus very frequently precede the onset of an attack of cholera. Such cases should be regarded with suspicion and be promptly remedied. When the onset is so well marked as to leave little doubt in the minds of the experienced of its infectious nature, of course the most careless physician will act vigorously. On the other hand, attacks of so-called cholera-morbus are not infrequent, especially during the summer

and early fall months, among persons who are addicted to imprudences of any sort, especially of injudicious eating and drinking. These attacks are particularly likely to occur among immigrants who, for the first time in their lives, indulge in copious drafts of ice-water, eat ice-cream, green corn, and other such articles of food and drink.

I cannot too earnestly urge upon the medical profession the great importance of unusual watchfulness at this time for undue bowel-disturbances, especially for attacks of so-called cholera-morbus, particularly when they occur in persons recently landed from emigrant ships. An attack of what seems like cholera-morbus among this class of people should be invariably looked upon with suspicion, and in every such case the precautions should be taken of thorough disinfection of stools and prompt isolation of the patient until the real nature of the attack shall have been determined.

In connection with cholera-morbus, I may say that there is most indisputable authority for the assertion that the *clinical symptoms alone* are incapable of furnishing to the most skilful diagnostician living reliable evidence upon which he can speedily determine whether a case in charge is one of Asiatic cholera or of simple non-infectious cholera-morbus.

From the time that Malgaigne went to Warsaw, in 1832, to make the acquaintance of an unknown plague in Europe, until Dr. Robert Koch, in 1883, visited Egypt and India to investigate the same disease, many have been the eminent physicians who have left their homes to study cholera in distant regions, and many have been the exhaustive observations of the disease in all of its forms and characters which have been made by the most distinguished clinicians and pathologists of the world during the times when it has repeatedly ravaged their own lands. The whole category of symptoms and visible signs by which Asiatic cholera under its various guises manifests its presence had been so often the object of the keenest and most intelligent examination, and so frequently the subject of most learned disquisitions, that its prompt and unhesitating recognition might reasonably seem, when it appeared in Europe in 1884 and 1885, to have been a matter of no great difficulty.

But what is the truth? Look at the recent experience of France, and Spain, and Italy, in 1884 and 1885. In each the prompt, vigorous, and judicious action required for the extinguishment of the spark before it could burst into an uncontrollable conflagration was paralyzed by doubt and uncertainty concerning the real nature of the disease.

While epidemic cholera was surely planting itself in France in 1884, few physicians asserted its presence with firmness, while the many denied it most positively. To remove the hesitation which this conflict of opinion naturally engendered, Drs. Brouardel and Proust were commissioned by the French Government to report upon the nature of the doubtful disease at Toulon. Those experienced physicians had the knowledge and the courage to unhesitatingly pronounce it epidemic cholera, but unfortunately they were unable to state its origin. On the other hand, Dr. Fauvel, Inspector-general of Hygiene, placed the weight of his high authority against that opinion, and reproached the commissioners with having uselessly alarmed the country and caused great damage to the commerce of France. Later, the National Consulting Committee of Hygiene officially declared that the disease was not Asiatic cholera, but was a benign cholera, non-contagious, and produced by local causes, and that it had nothing to do with importation from without, and possessed no power of epidemic dissemination. Added to these misleading statements was the impression produced by the majority of the medical press of that country in industriously supporting the assumption that the epidemic would limit itself to the locality of its outbreak, and would soon cease.

This history has repeated itself in the various declarations, official and private, concerning the nature of the present epidemic in Paris and its suburbs. The same may be said of the development period of cholera now at Havre, Antwerp, and Hamburg.

As in France, similar doubt and uncertainty and inaction existed in Spain at the commencement of the invasion of cholera in 1885. It is true that a few scattering cases of cholera, mainly confined to some localities in the province of Alicante, had appeared in 1884, but the epidemic which so frightfully ravaged Spain in 1885 undoubtedly spread from the town of Játiva, in the adjoining province of Valencia. After having lingered in that vicinity through the winter under the mask of *suspicious cases*, during the fourth week in March of that year the epidemic raised its head in that town. Public rumor to this effect, originating with the physicians of Játiva, soon reached the Governor of the province and the city of Valencia; and in response to the demands of the populace a special commissioner was dispatched to investigate. Arrived in Játiva, a few cases examined, and a hasty consultation held with the local board of health, an official declaration was hurriedly published that Asiatic cholera did not exist in that place; and later the provincial board of health confirmed this opinion. Nevertheless, the unknown mysterious disease continued to spread throughout the town, and, besides, rapidly invaded village after village, unchecked by any active opposition. Notwithstanding, as late as the 15th of April, the same provincial board of health formally congratulated the people upon the favorable course and slight importance of the disease, which was

even then officially looked upon as *only suspicious*. During this time of inaction and hesitation on the part of the authorities, there reigned the greatest anarchy of opinion among the local physicians. A few affirmed their belief that they were dealing with genuine Asiatic cholera; some insisted that the suspicious visitor was nothing more than the common sporadic cholera; others declared it to be a pernicious fever of choleraic type; many claimed that it was malignant malarial fever; yet others held that it was a kind of entero-gastritis; and not a few pretended that it was the bubonic plague, but without the boils. The whole history of the invasion of Egypt in the first place, and of France, Italy, and Spain later, is nothing but a repetition of similar doubts on the part of the physicians having to deal with the disease, and of inaction on the part of the local authorities whose business it was to adopt and enforce measures to stamp it out.

But why continue longer in narration of this disgraceful and unfortunate history of the doubts and contradictions and vacillations concerning the nature of the disease which have characterized that as well as all former visitations of Europe by epidemic cholera? It forcibly illustrates one most important fact.

That fact is, *unless the investigations of the German commission have brought to light in the presence of the cholera-bacillus a sure and unmistakable diagnostic sign of Asiatic cholera which can be quickly distinguished*, in spite of the great and valuable knowledge of the disease gained by the study of former epidemics, *we do not at present know how to recognize genuine Asiatic cholera in time to safely guard the people against its deadly power*.

In Egypt and in France and in Spain and in Italy the character of the disease and the consequent danger were not fully recognized until it was too late to arrest its destructive course, and thus it has been everywhere and at all times in the history of the march of epidemic cholera.

Fortunately for mankind, the observations and experience of the last nine years have at last placed at the disposal of the medical profession and of public health-officers most positive means of recognizing in a reasonably short time the infectious nature of the discharges of a suspected person by means of bacteriologic examination. The health-authorities should *invariably*—and the private physician whenever possible—resort without delay to this certain means of diagnosis in *every suspicious case*, and the suspected persons should be kept in strict isolation and surveillance until the results of such an examination be obtained. It is only in this manner that a population can be insured against the establishment of an epidemic following the appearance of scattered cases of choleraic diarrhea and masked cholera, which, because of their lightness, may escape notice, or because of their similarity to other diseases may be mistaken for the latter. Let every physician, therefore, regard it as a part of his duty to the general public to vastly supplement the watchfulness of the health-officials in the effort to detect and isolate at the earliest possible moment the *few scattered cases* which almost invariably precede the establishment of a widespread epidemic of Asiatic cholera. Let no misplaced regard for the tender sensibilities or vigorous protests of his patients or of their friends induce him at such a time to attempt concealment or delay, in the hope that the attack may ultimately prove to be void of the dreaded character. There is reason to believe that the awful calamity which has befallen the city of Hamburg is traceable to the criminal neglect of a single man. Let every physician, therefore, fully appreciate the importance of his responsibility to the general public. Besides alertness in the discovery and promptness in reporting suspicious cases, the physician could perform a great public service by notifying the health-department of nuisances and defective plumbing, drainage, etc.

INDIVIDUAL MEASURES OF PREVENTION.

Means and Mode of Infection.—Since the infectious agent exists in the evacuations both from the stomach and from the bowels, various materials become capable of conveying the infection of this disease—such as clothing soiled with this matter; hands fouled with it; articles of food and drink which have been contaminated with it. It is by means of soiled clothing and personal effects, upon which this agent is preserved in a more or less moist condition, that the infectious principle is usually conveyed long distances, both by land and by sea. The contamination of watercourses and small streams by vomit or dejecta is perhaps the most frequent and certainly the most rapid means of producing a sudden and widely-extended outbreak of Asiatic cholera. The watercourses are not infrequently also contaminated by washing therein the personal effects of cholera-patients.

Regarding the comma-bacillus of Koch as the infectious agent, it has been established by numerous and exact experiments that this microbe is not only able to live for a considerable length of time in water, but is even capable of enormous multiplication therein, especially if the water contain a certain amount of organic or vegetable material. The use of such contaminated water for drinking, bathing, and culinary purposes is perhaps the most frequent mode of introduction into the human organism of the contagious principle of cholera infectiosa.

The universal practice of the watering of milk also renders this article exceedingly and especially

dangerous to children during periods of the prevalence of cholera; and, where extensive and sudden local outbreaks of the disease cannot be attributed directly to the use of contaminated water, it is generally the milk which conveys the cause of infection. Other articles of food are in a far less degree liable to contamination, but there are numerous examples of infection occasioned by thoughtless and accidental contamination of vegetables, fruits, and other nutritive material.

Experience has abundantly proved two laws which have an important bearing upon the spread of cholera: (1) *The tendency to infection varies exceedingly among individuals, and is with the majority small.* (2) *Disturbed conditions of the digestive apparatus greatly increase the susceptibility of an individual and render him far more liable to an attack after exposure to the infection.*

As has already been said, it is exceedingly improbable that the infectious principle is ever conveyed to the healthy by the medium of the air; it is certainly never transported to any considerable distance in this manner. It is very doubtful, if even possible, that infection may take place through the lungs. It is certain that it cannot be effected by cutaneous absorption. The disease, therefore, cannot be properly termed truly contagious in the common use of that word. It is extremely doubtful if there be a single well-authenticated case upon record in which the disease has been conveyed in any other manner than by the introduction of the infectious principle into the stomach.

Still, regarding the comma-bacillus of Koch as the infecting agent, it has been abundantly proved that the normal acid juices of the stomach are capable of destroying it. It is, therefore, not surprising that the examples are multiplied in which water and other ingesta known to be infected have been swallowed, intentionally or accidentally, by healthy persons, without harm. If, however, this living infectious principle, the comma-bacillus of Koch, escape beyond the lower end of the stomach and pass into the small intestine, the contents of which have an alkaline reaction, multiplication with enormous rapidity therein, elaboration in considerable quantity of the poisonous ptomaïne, and the establishment of the disease which we recognize as Asiatic cholera become possible.

PROPHYLAXIS.

The considerations already advanced suggest prophylactic measures which experiment and experience have proven to be trustworthy. If the stomach be properly guarded against the introduction of the living infecting principle, the individual will be necessarily protected against the danger of an attack.

Protective measures may be considered from two standpoints: A, with regard to the person suffering from an attack of the disease; B, with regard to the healthy individual exposed to infection.

A. *With regard to the person suffering from an attack of the disease.* The evacuations from the stomach and the bowels should be immediately disinfected; if this is thoroughly accomplished, it is impossible for the infection to spread beyond the individual. The dejecta and the vomited matter should be passed into a vessel containing a quart or more of a strong solution of carbolic acid—one part to twenty of water—or of chloride of lime ten per cent. strong; and immediately after the evacuation a sufficient amount of the disinfectant should be added to make the whole quantity equal to the bulk of the evacuated material; the whole should then be gently stirred, and afterward allowed to stand at least twenty minutes, when it should be removed and emptied into a pit containing unslaked lime, and be immediately covered by a quantity of the same material.

The clothing of the patient, as well as the soiled bed-linen, immediately after removal, should be disinfected by thoroughly soaking for an hour or more in a large quantity (more than sufficient to cover them) of a strong solution of carbolic acid or chloride of lime one part to twenty; or they should be immediately subjected to the prolonged action of boiling water or steam. The anus, hands, and mouth of the patient should also, immediately after an evacuation, be washed with a disinfectant—in this case, however, weaker than has been indicated, say one part to two thousand of mercuric chloride and water, for the anus and hands, and for the mouth water slightly acidulated with sulphuric acid. The hands of the attendants, also, should be washed with the same weak solution of mercuric chloride after handling the patient. Under no circumstances should the attendant, or anyone else, eat in the same room with the sick; and, as an invariable rule, which should be scrupulously observed, no person who has been in direct contact with the sick or with any of his personal effects should eat without first thoroughly cleansing and disinfecting the hands.

B. *With regard to healthy persons exposed to the infectious principle of the disease:* Remembering what has already been remarked concerning an increased susceptibility to infection by reason of disturbance of the digestive apparatus, it is strenuously insisted upon that all causes, of whatever nature, of disturbance of the functions of the stomach and intestines, should be studiously avoided: such as intemperance of all kinds, either in drinking or in eating; all irregularities of personal habits, either as to time of meals, occupation, exercise, or hours

of sleep; all emotional excitement should be removed; in short, every circumstance which experience has shown may exercise a disturbing influence upon these important functions should be carefully guarded against; the use of articles of food which are liable to occasion indigestion, or to cause an unusual or unhealthy activity of the digestive apparatus, should be interdicted; children should be carefully prevented from indulging in exhausting sport or exercise, and should be carefully shielded against intemperate weather; it is all-important that the functions of the skin should be kept regular and active by a sufficient amount of seasonable clothing by day and by night; particular care should be taken that revulsions of blood, produced by chills, from the cutaneous surface to the internal organs, especially the abdominal, may not occur, and in this connection it is strongly recommended that the abdomen be enveloped at night in a broad band of flannel, in order that during the restlessness in sleep the skin of the abdomen may not be exposed to the direct action of the air; cold baths should be avoided; the surface of the body should be washed at not too frequent intervals, by sponging with tepid water, and afterward dried thoroughly by vigorous rubbing with a rough towel; meanwhile, the body should be protected from draughts. Irregularity and intemperance in eating and drinking have already been alluded to. It is important that the imbibition of large quantities of water or other fluids at intervals between meals be avoided, for, if there were no other reason, it is a well-known physiologic fact that in the intervals of digestion the reaction of the gastric juice is neutral and sometimes even slightly alkaline. If contaminated water or milk should be swallowed in large quantity during this interval, it is clear that the probability of the living infecting agent passing through the pylorus into the small intestine is greatly increased, and the possibility of an attack much enhanced. In a house in which a cholera-patient is suffering, the children and all others not in attendance upon the sick should be kept out of the sick-room. But if, as often occurs among the class of people who are mostly the sufferers from cholera—the poor and the squalid—there be only one common room for the use of the family, no one should on any account be permitted to occupy the same bed as the sick, and during the day, as also during the night, all should avoid as much as possible contact with the sick-bed.

Attention to the preparation of food is a matter of extreme importance to all persons exposed to the infection of cholera, and especially to children. It goes without saying, that the materials consumed should be perfectly fresh and sound in every respect, and that the water and milk employed should be absolutely free from the living infecting principle, as well as pure and healthy. As a guaranty against the possibility of infection by means of water or milk, both should be thoroughly boiled before use, and, as it is possible for the cholera-microbe to multiply rapidly both in water and in milk, the boiling should have been *very recent.* Coffee and tea should have been *recently* made and be *served hot.* All food should have been *thoroughly* and *recently* cooked. No raw food of any description, except possibly a moderate quantity of perfectly fresh, ripe, and absolutely clean fruits should be eaten. *Salads* and other such articles should be *interdicted.* Bread, as well as butter, should be carefully protected against the possibility of contamination. The culinary utensils and tableware should be *scrupulously cleaned with boiling water.*

The hygienic condition of the dwelling and its surroundings should be made as perfect as possible. All decaying animal or vegetable matter should be removed. The house-drains should be free and clean, and flushed with a sufficient amount of water at intervals, preceded by the emptying therein of a liberal quantity of strong solution of copperas in water, or of a 5 per cent. solution of carbolic acid, or equal strength of chloride of lime. The cesspits and the privies should be kept clean and free from odor by unslaked lime, large quantities of copperas, or other similar inexpensive materials. The supply for *drinking-water should be scrupulously guarded from possible contamination of any kind.*

Among the precautions to be enforced against a threatened attack of Asiatic cholera in anyone, but especially in the young, one of exceeding importance is watchfulness over the condition of the alimentary canal. In a large number, perhaps in the majority, of instances, an attack of cholera is preceded for some hours or days by derangements of the digestive apparatus, such as distress or a sense of fulness or heaviness in the stomach, of gastralgia or nausea, or of occasional vomiting; or the disorders may be limited to the intestines only, and be manifested by vague general abdominal uneasiness, or slight fleeting pains, or active peristaltic movements which can be seen or felt through the abdominal walls; and all or any of these may be associated or end with diarrhea, and sometimes with a tendency to disproportionate prostration; or, the disorders of the stomach and intestines may be combined; or, the attack may be fulminant without such warnings.

If these disturbances of the alimentary tract are promptly discovered and remedied, many an attack of cholera will be thereby avoided. In such cases, absolute rest in bed, and, if possible, also total abstinence for a day or two from food, should be enjoined; if there be reason to infer the presence in the stomach of undigested food, a single emetic dose of ipecac should be administered; or if there

be visible peristaltic movements of the intestines, or diarrhea, these should be controlled respectively by small doses of opium in a convenient form, and of such drugs as salol, naphthalin, or analogous compounds.

What has thus far been said applies especially to individuals; but, unfortunately, in this disease public interests and relations must also be regarded, and from this standpoint, *so long as there are in the locality only a few scattered cases of the disease*, the utmost efforts should be made to prevent the establishment of an epidemic.

It is obvious that the evacuations of the intestinal canal of the attacked should, without loss of time, be carefully disinfected. But by no means all suffering from an attack of cholera infectiosa are, especially in the earlier stages of the disease, so ill that they cannot be out of bed, and even out of doors engaged in their ordinary vocations. Yet experience has abundantly proved that those suffering "a walking attack" carry in their intestinal canal the infectious agent of cholera, and are capable, under favoring circumstances, of establishing a center of infection wherever in their movements they may chance to void those intestinal contents. Hence the necessity of temporarily restricting the liberty of all inmates of the infected dwelling and of all persons in close communication with it, whether at the time of infection they are evidently suffering or not. All such persons should be isolated and kept under strict surveillance until the extreme limit of the period of incubation (say, five or seven days) has fully elapsed, *counting from the commencement of the surveillance*. If during these five days no sign of even a slight or "walking attack" has made its appearance, and finally if a culture-test, as already described, of the feces has indicated the absence of the comma-bacilli of Koch, the individual temporarily restrained of his liberty both for his own benefit and for that of the public, may without danger be again restored to the full enjoyment thereof.

THE ABILITY OF THE STATE TO PREVENT AN EPIDEMIC OF CHOLERA.[1]

BY BENJAMIN LEE, M.D.,
SECRETARY OF THE STATE BOARD OF HEALTH OF PENNSYLVANIA.

THERE are two ways of preventing an epidemic of Asiatic cholera: the one, by a perfect system of quarantine to prevent a single germ of the disease from entering the country to be protected; the other, by the enforcement of enlightened and strict sanitary regulations to remove all conditions favorable for the propagation of the germ should it enter. This latter is the English way.

The system of seacoast quarantine in Great Britain, as has long been known to American sanitarians, is defective in the extreme. Recent disclosures have developed the fact that there is really no power in the Government to enforce quarantine. The great British doctrine of free trade seems to have been pushed to its utmost limit to include disease as well as other commodities. This system may prove successful. It may be possible to introduce the germs into a community and to have everything in such an admirable condition of cleanliness and such strict enforcement of local precautions that the germs will quickly die. This seems to have taken place in England during the past fortnight. But to accomplish this result there must be a complete and thorough sanitary organization of the country, so that no foot of ground escapes frequent sanitary inspection and no accumulations of filth are allowed to remain upon its surface or beneath the surface for an hour.

In England, every householder is liable at any moment to a visit from an agent of the Board of Health. If this agent finds the least infraction of the rules of the Board, so much as a piece of bone lying on the ground which should be in the garbage receptacle, he whips out his tablet and makes a note of the fact and says, "You are fined so many shillings." The fine is paid on the spot. Such is the sanitary organization of England, with the Local Government Board at its head, controlling the whole system. Such, unfortunately, is not the sanitary organization of all of the States of this Union. Hence it would be folly for us not to make every effort to render the first plan successful. Evidently neither should be relied on alone. The one should supplement the other.

The subject assigned to me by your Directors may be considered from two points of view: the ideal and the actual—the ideal based upon conditions which are entirely practicable and possible; the actual based upon conditions now existing in this State.

The ideal conditions for defence against cholera are:

First. Thorough sanitary organization of the State, no portion of its territory to be without its legally qualified health-officer, having a district not too large for faithful and frequent personal inspection; such officer to be well paid for his services, and to be subordinate to a county or district health-officer, also properly remunerated, and all to be controlled by the central health-authority of the State.

Second. A sanitary code at least as perfect and strict as that of a large city—Philadelphia, for example—for the entire State.

Third. A national quarantine service, with ample

[1] Read before the Philadelphia County Medical Society, September 14, 1892.

powers and means, having a station at the mouth of every large bay or river on which are ports of entry, as remote as possible from centers of population, with occasional refuges, remote from channels of commerce, to which ships and effects demanding an unusual amount of disinfection can be remanded if necessary.

On this question of the importance of a uniform and comprehensive system of coast-defence under national *régime* I feel very strongly.

I may be pardoned for alluding to a paper which I read before the National Conference of State Boards of Health in 1888, in which I answered affirmatively the question, "Should the National Government Assume Control of Quarantine at All Ports of Entry?," to a paper which I read before the Section on State Medicine of the American Medical Association, in the same year, entitled, "Should Not the National Government Defend Our Ports against the National Enemy, Contagious Disease?" and to a "Report of Inspections of the Quarantine Stations of the Middle Atlantic Coast," made to the National Conference of State Boards of Health, at the close of which I suggested the following evils as incident to the disjointed system of State and municipal quarantines:

"*First.* Want of uniformity in quarantine regulations.

"*Second.* Conflict of authority, owing to the methods of appointing officials.

"*Third.* The entire lack of appreciation on the part of local Legislatures, whether State or municipal, of the importance of the expenditure of considerable amounts of money in order to render quarantines at once efficient and inoppressive.

"*Fourth.* The tendency on the part of local civic authorities to limit their responsibility to the protection of their own city."

The fourth condition which I would propose is: A municipal quarantine service for all large cities, by which vessels can be subjected to a second scrutiny whenever circumstances render it necessary.

I have no hesitation in saying that, with the foregoing conditions, in view of our present accurate knowledge of the habits and habitat of the cholera-bacillus and its mode of propagation, for which thanks are due, among others, to our distinguished fellow-member, Dr. Shakespeare, the ability of the State to prevent an epidemic of cholera is absolute.

Now let us come to actual conditions, which are what more nearly concern us at the present moment: What as to the ability of this particular State of Pennsylvania to exclude the disease or to prevent its becoming epidemic?

I placed as first among the essentials of immunity, sanitary organization of the State and a State sanitary code, because I believe them to be the most important. In these grand fundamental requirements of an enlightened civilization I regret to be compelled to say that Pennsylvania is absolutely deficient. Notwithstanding the repeated importunities of the Board of Health, the Legislature persistently declines to legalize boards of health or health-authorities of any kind outside of large cities. The only appeal that our people living in towns, villages, and rural districts have when their neighborhood is invaded by epidemic disease, or when suffering from some intolerable nuisance that endangers the public health, is to the State Board of Health. It is not difficult to understand how utterly impossible it is for a single Board, with one paid officer, and four thousand dollars a year to work with, to give any adequate attention to the complaints of three million people scattered over an area of forty-five thousand square miles.

The constant cry that comes up to the ears of the Board is: "Our village is in a most filthy condition; our children are dying of diphtheria; typhoid fever is rife; and we are entirely without health-authorities of any kind. Will you not come and help us?"

In its efforts to render aid in such cases the Board finds itself at once hampered by the fact that the State is almost entirely without sanitary statutes. In order to enforce its orders it must have recourse to the slow process of the law and trial by jury. In other words, the State of Pennsylvania is without a sanitary code.

These being the conditions, the ability of this State to prevent cholera from becoming epidemic, should its germs find their way into its densely populated and filthy mining towns, is more than doubtful. Once let it become epidemic along the course of the Schuylkill River, and Philadelphia may repeat the experience of Hamburg.

In the absence, then, of any proper provision for sanitary officers, the Governor of this State was eminently justified in urging the people to unite in voluntary organizations, and appoint sanitary committees for the purpose of putting their respective towns in a state of sanitary defence. This they are doing to an encouraging extent, but, of course, they labor under a great disadvantage from lack both of authority and of experience.

Regarding our third condition, the outlook is extremely encouraging. The United States Quarantine Station at the mouth of Delaware Bay is in many respects well equipped. Its deficiencies are being rapidly made good. Its officers are efficient and experienced. It is remote from any large center of population, and of sufficient extent to accommodate a large number of suspects. I have strong faith that the enemy will not pass this outer

line of coast-defence. Should it do so, it will be met by the united forces of State and city at the Lazaretto, and, while the unfortunate contiguity of that station to this city and to the city of Chester and a populous neighborhood must be admitted, yet the energy and decision with which the Board of Health of this city and the State Quarantine authorities connected with this port are meeting the emergency, and supplementing the altogether inadequate and antiquated plant at the Lazaretto with modern appliances and increased accommodations, afford reasonable ground for hope that the onward march of the disease will be finally checked at that point.

Our fourth condition, therefore, while by no means all that could be desired, still exists in such a state of preparation that we may place considerable reliance upon it.

As I understand the situation, then, our danger here in this city lies not so much in an open invasion by way of the Delaware River as in a covert movement by flank and rear, through other ports, or possibly through merchandise introduced at this port, aided by the coöperation of those powerful allies, filth and absence of sanitary law and organization.

To guard as far as possible against this indirect introduction of the disease through other ports, the State Board of Health has promulgated the following order:

"*To Transportation Companies:*

"In accordance with Regulation III of this Board, in regard to the sanitary supervision of travel and traffic, which reads as follows:

"'Upon satisfactory information of the approach to or transit through the Commonwealth of Pennsylvania of infected persons or goods, it shall be the duty of the Secretary, as executive officer of the Board, to cause the same to be stopped at the State line, or, if found within the limits of the State, to cause such persons or goods to be removed from cars, stages, vessels, boats, or other conveyances, and securely isolated and disinfected; and he may, if in his judgment the emergency is such as to demand it, call a meeting of the Committee on Travel and Traffic, to which his action shall be submitted, with his reasons therefor, in writing. But, in cases coming under the jurisdiction of national or municipal quarantine authorities, he shall coöperate with said authorities in all such action'

"Notice is hereby given to the officers of all transportation companies, whether by land or by water, that any transportation company shall be declared contraband of quarantine which shall introduce, land, or transport within the borders of this Commonwealth of Pennsylvania any person suffering from Asiatic cholera or cholerine (so-called), or any person who shall develop said disease within four full days after having been so introduced, transported, or landed within the borders of said Commonwealth by such company.

"If a railroad company be thus declared contraband of quarantine its trains shall be stopped at the State line, and held until inspected by an inspector of this Board and declared by him free from the danger of conveying the contagion of Asiatic cholera into this Commonwealth.

"If a steamboat, canal, or other navigation company, its boats shall not be allowed to enter any dock, tie up at any wharf, or by any means land passengers, baggage, or merchandise until it has undergone like inspection, and been declared free from danger of introducing the said contagion into the Commonwealth of Pennsylvania.

"By order of the Board,

"BENJAMIN LEE, M.D.,
"Secretary and Executive Officer."

As a further matter of precaution, the Board has issued the following instructions:

"*To the Officers of Railroad and Steamboat Companies in Pennsylvania:*

"The principal railroad companies operating in this State have adopted admirable regulations for the sanitary care of their cars and premises under ordinary conditions. The State Board of Health has already taken occasion to commend these, as well as the readiness of these companies to coöperate with it in efforts to protect the public health. In view, however, of the threatened invasion of Asiatic cholera, it is important to enforce these regulations with unusual strictness, and to take certain additional precautions.

"The Board therefore orders:

"*First.* That all water-closets and urinals in cars be provided with proper water-tight receptacles for retaining deposits, instead of allowing them to fall on the track, and thus endanger water-supplies; said receptacles to contain disinfectants, and to be renewed at certain intervals in such places and in such manner as may be determined upon for the most perfect protection against infection. The adoption of the precaution should be begun with second-class and immigrant cars, and extended as rapidly as possible to first-class cars.

"*Second.* Should the discharges of the sick fall upon seats, floors, or platforms of cars or stations, they should be first disinfected, and then removed in closed buckets, and the soiled places then disinfected and thoroughly cleaned.

"*Third.* All cars coming from infected places shall be disinfected before sweeping, and the sweepings disinfected and burned.

"*Fourth.* All water-closets and urinals in steamboats and canal boats shall be provided with proper water-tight receptacles for retaining deposits instead of allowing them to fall into the water, which is in most instances the supply of drinking-water for some center of population. Such receptacles shall always contain disinfectants, and shall be emptied at the end of each trip in such manner and in such place as may be designated by the local authorities.

"*Fifth.* All accumulations of filthy clothing and rags shall be at once disinfected and burned.

"*Sixth.* Should cholera become epidemic, the drinking-water furnished for the use of passengers should be boiled, and, so far as possible, should not be obtained from places in which the disease exists.

"By order of the Board,

"BENJAMIN LEE, M.D.,
"Secretary and Executive Officer."

The campaign throughout the State and on the borders being thus outlined, we come to perhaps the most important question of all, where the ability of the State is concerned, viz., the sinews of war. Much work of the utmost importance should be done under the superintendence of the State Board of Health. But whence is the money to come to pay?

The laws make provision for the expenditure of the State's funds with the utmost lavishness for the protection of property; but, when nothing more valuable than human life is concerned, there is no authority for the disbursement of a single penny from the treasury beyond the meager appropriation to the State Board of Health already mentioned.

THE MORBID ANATOMY AND DIAGNOSIS OF CHOLERA.[1]

BY JAMES TYSON, M.D.,
PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

THE picture of the essential morbid anatomy of cholera is neither complex nor varied, but repeats itself with tolerable simplicity and uniformity. A comparison with the more condensed accounts to which the proceedings this evening are comparable leads me to believe that its essentials do not include much more than is covered by the description of an autopsy made by myself at the Philadelphia Hospital in 1866 or 1867.

The patient was a woman, aged twenty-nine, who died after an illness of twenty-four hours.

The examination was made one hour after death, and the central portions of the body were still warm.

Abdomen. The *stomach* was filled with turbid liquid, grayish-white in color, resembling rice-water. In this the microscope discovered numerous columnar epithelial cells, isolated and aggregated, forming flakes; also disintegrating muscular fasciculi, doubtless from beef-essence taken during life. The mucous membrane of the stomach appeared much congested, and the distribution of the larger vessels could be readily traced in consequence of their being filled with thick blood. My notes read that the papillated appearance ascribed to enlargement of the solitary follicles was present, though less distinct than that described in published reports of post-mortem appearances.

The epithelium was detached in some places, in others intact.

The *liver* was natural in size, but congested and darker-hued than in health. Its cells, as determined by microscopic examination, were normal.

The *kidneys* were normal in size, but appeared dark-hued and congested. The tubules and lining cells were normal.

Thorax. Both *lungs* were firmly attached by old adhesions; the lower lobe of each was hypostatically congested, but otherwise they were normal.

The *heart* was normal in size, but its walls were somewhat flaccid. There was a small, currant-jelly clot in the right ventricle, and the remainder of the cavity, as well as the left ventricle, was filled with dark, liquid blood.

The mucous membrane of the small intestine was also much congested; the bowel contained no fluid, but was distended with gas. On its surface lay numerous patches or flakes of greenish color, which on microscopic examination proved to be epithelium. The papillated appearance produced by enlargement of the lymphadenoid follicles was everywhere present.

Microscopic examination showed the villi largely denuded of epithelium, but not completely, and in places a considerable surface was intact.

Such is the description of the appearances found at an autopsy twenty-five years ago, one of several made at that time, and, with some changes, it may be regarded as a type of those cases. In most cases the intestines also contained the rice-water liquid; in some this was absent from the stomach. The appearances are not materially different from the macroscopic morbid features of the more recently described cases. The additions that modern studies have made are histologic rather than macroscopic, but they are of infinite importance. In addition to a cellular infiltration, more or less dense, of the mucosa, the submucosa, and even the serous coat, there is found the *comma-bacillus* in immense numbers in the contents of the intestine, more rarely in the stomach, and in protracted cases in the intestinal wall, in its follicles, and even deeper tissues.

The congestions, referred to as present in the lungs and mucous membrane of the stomach and intestines in my case, would seem to indicate that some reaction had been established, as these organs are commonly anemic when death takes place during collapse. The same is true of the liver and kidneys, which are more frequently described as pale and flaccid. The heart more frequently has its right cavities filled with thick, dark blood, while the left side is empty. In many instances, the lungs also present an appearance more or less characteristic, being shrunken and small and lying back in the thorax, as though collapsed. Under these circumstances they are like the other tissues, empty of blood, except in their dependent portions, which are the seat of a hypostasis such as described in my own case. They have been compared by Parkes to fetal lungs, and by Sutton the two organs were found to weigh but twenty ounces, as compared with forty-five ounces when death occurred after reaction had been established—that is, after the blood had again occupied the pulmonary artery and its branches. In some cases this collapse is but partial, as when interfered with by adhesions, as also was found to be the case in my own patient.

Such appearances could, of course, occur in death from hemorrhage, and, after all, the only essential condition is the presence of rice-water fluid in the stomach or intestine, or in both, containing the "comma" bacillus and desquamated epithelium. The last, to which the earlier descriptions attached

[1] Remarks made at the meeting of the Philadelphia County Medical Society, September 14, 1892.

great importance, is now generally regarded as post-mortem in origin. The flakes thus produced probably represent also the patches of lymph described by the older authors.

If death take place during the stage of imperfect reaction, the mucous membrane is much more frequently found congested and of a dark-red color, from the hyperemia and extravasation of blood. At such time, too, the solitary glands are conspicuous, as also are Peyer's patches, and the same denudation of epithelium from the villi and elsewhere is present. The only signs that suggest an inflammatory process are the slight cellular infiltration of the intestinal walls and the enlargement of the solitary follicles.

In the matter of *diagnosis* it is well known that, so far as symptoms are concerned, cases of cholera-morbus, cholera nostras, or sporadic cholera, as we may prefer to name it, have occurred with symptoms absolutely identical with those of true cholera, including the fatal termination. It is not worth while, therefore, to attempt to contrast the clinical features of true cholera with those of cholera morbus, with which alone it is likely to be confounded. By bacteriologic investigation only, including also cultivation on artificial media, can a given case be identified with absolute certainty. Dr. Abbott informs me, however, that fifty-two hours is the minimum time required to complete such a bacteriologic diagnosis. Further, such investigations can only be made by those who are expert, and provided with proper facilities. Such expertness and facilities, moreover, are not found in the hands of general practitioners, and the bacteriologic investigation is therefore of limited application.

As to microscopic examination of the dejecta, which is more feasible for the practitioner, it may also be said that if the examination reveals a preponderance of curved bacilli, comma-shaped, and sometimes joined end to end so as to form figures somewhat resembling the letter S, and again appearing in longer threads, we may feel justified in considering the case one for careful study by bacteriologic methods. Although there are found in the alimentary tract other bacilli the morphology of which is much like that of the cholera-bacillus, they are not numerous.

How, then, shall we know a case of vomiting, serous diarrhea, severe colicky pains, followed by collapse, to be a case of cholera? In this country, where such a thing as endemic cholera is unknown, it goes without saying that any isolated case, even if fatal, cannot be one of true cholera, unless there be traceable some connection with an acknowledged focus of cholera elsewhere. Second, such communication must have taken place within the period of incubation required for the development of a case—say within six days. Of course, such communication need not be a personal one. It may be by clothing, merchandise, and probably even by letter.

These conditions being fulfilled, the patient suffering with the symptoms of cholera must, for the time being, be regarded as a case of the true disease, and isolated until the bacteriologic investigation can be made, but the rapid occurrence of similar cases increases the probability of its being true cholera, and finally establishes its certainty. Yet, local epidemics of cholera-morbus do sometimes take place, severe and grave in character, due to local causes, and favored by extreme and long-continued heat. Thus it is still a question whether the recent epidemic of cholerine that prevailed in Paris in May, June, and July of this year, was true cholera or cholera-morbus, and there seems much reason to believe it to have been the latter, notwithstanding the prevalence of true cholera.

There is one very important etiologic rather than clinical difference in the two diseases which is also of great diagnostic value, and that is this: that almost invariably cholera-morbus is traceable to a severe and irritating exciting cause, such as a meal of indigestible fruits or vegetables, or imperfectly cooked or decomposing fish or shell-fish; while cholera comes on without any such cause, or succeeds trifling derangements of digestion, which in other than cholera-seasons pass away without harmful results. As a rule, too, the symptoms of cholera-morbus are much less severe than those of true cholera, and the matters first vomited are the undigested matters that have acted as the exciting cause, succeeded by green, bilious matter. The discharges from the bowels are also at first more of a bilious character; and above all, the mortality is much less serious. Indeed, recovery is the rule. Yet, as already stated, these distinctions alone are not to be relied upon.

SUGGESTIONS AS TO THE PROPHYLAXIS AND TREATMENT OF CHOLERA.

BY D. D. STEWART, M.D.,
CLINICAL LECTURER ON MEDICINE, JEFFERSON MEDICAL COLLEGE.

THE important discovery of the illustrious Koch of the probable *contagium* of true cholera, thus endowing the disease with an individuality the most important characteristics of which could be readily ascertained, will doubtless lead eventually to a successful therapy based on antagonism of the products of the germ's activity, and perhaps finally to the practical extinction of the disease through a conferring of immunity by vaccination, and the adoption of comprehensive sanitation, aimed at eradicating the disease in its perennial endemic quarters.

As yet, however, little has been accomplished

practically by Koch's discovery in any direction other than that of hygienic prophylaxis. The specific leukomaïne of the spirillum has not been isolated nor has its antidote been ascertained. Little of practical importance has, indeed, yet been accomplished if we take no cognizance of the claims of Ferran, who, until Shakespeare's valuable *Report on Cholera in Europe and India* recently appeared, was generally viewed as the merest charlatan, and the active principle of whose inoculating material was said to consist rather of a substance resembling croton oil than a pure culture of cholera-bacilli. If Ferran's assumptions are reliable, it seems curious that no effort has been made outside of Spain to utilize so important a discovery as the conferring of more or less persistent immunity against cholera by inoculation. This is in all probability due to an unfortunate prejudice existing against Ferran, who apparently was more desirous of pecuniary reward as a result of his discovery than of lasting fame as a philanthropist, and who, therefore, surrounded his methods with sufficient secrecy to invite suspicion of chicanery.

Very recently the experiments of Brieger,[1] undertaken on the same lines as those of Ferran, indicate that the latter's claims as to the production of artificial immunity in animals and man to the toxic action of the cholera-germ were not extravagant, and that we are on the eve of their complete confirmation. Unfortunately, Brieger has not yet extended his experiments to man, though this will likely soon follow. However this may be, at present a protective vaccination is not available as a means of meeting a visitation of cholera, so that other less certain measures must be sought of securing individual immunity.

A knowledge of the peculiarities of the contagium of cholera permits us to adopt certain safeguards of more or less value, depending upon the thoroughness with which they can be carried out. It is now generally believed that infection occurs through no other channel than the mouth, and usually originates through the ingestion of contaminated water (or watered milk). But the greatest caution as to drinking only thoroughly and recently boiled water, even when one does not come in contact with cholera-patients, and has, therefore, no opportunity of soiling the hands with the dejecta, will not always protect from the disease, as there are many unforeseen channels during an epidemic through which the food or hands may become contaminated.

As the comma-spirillum is not spore-forming and readily perishes in acid media, the normal stomach acidity being sufficient to render it inert, it follows that though taken in some quantity with the food by an individual with a healthy digestive apparatus, infection is unlikely to occur.[1]

It is for this reason that attention to gastric digestion is doubly indicated during an epidemic of cholera, and that, in addition to the caution necessary in the selection of non-contaminated food and drink, care must be paid to the amount and quality, that, apart from the danger of originating stomach or bowel disturbance, the germ does not escape destruction in the stomach should it gain entrance with the food. For a similar reason, in addition to the usual precautions now universally advised and generally known, as to the use of only thoroughly boiled water for drinking and for culinary purposes, and the care necessary in the selection and preparation of edibles, I should strongly advocate in all persons suffering from any form of gastric derangement attended with subacidity, whether it be gastric catarrh or the so-called nervous or atonic dyspepsia, the administration of hydrochloric acid in full doses after meals.

It is surprising to one unaccustomed to the use of the stomach-tube to find how many have lowered acidity who, in seeking advice, do not particularly complain of gastric symptoms. Among all, save the most robust, with undoubted vigorous gastric digestion, and those whose symptoms indicate a heightening of the normal gastric acidity, the use of hydrochloric acid would be advisable. As it is best given in gastric catarrh, so it should be prescribed here, in doses of about a teaspoonful of the dilute acid to eight ounces of water, taken in two or more portions at intervals of from ten to fifteen minutes, the initial dose being delayed until a half-hour after a meal in which amylaceous food forms a part. The acid here serves a double purpose of germicide and digestant.

As a further prophylactic, where it is suspected that infection may occur, despite the adoption of the commonly advised precautions and the attention given to gastric digestion, as through fluids ingested on the empty stomach, it has occurred to me that an insoluble, harmless antiseptic, such as hydronaphthol, would be especially indicated. This drug particularly has suggested itself in this connection, as I have now used it largely for seven years with the very best results, in cases of intestinal disturbance of various kinds induced by fermentative processes. The chief ill-effects of cholera are probably due to the action of the spirillum or its leuko-

[1] Brieger (*Deutsche med. Woch.*, 1892, No. 31) has recently succeeded by inoculation in rendering guinea-pigs absolutely immune to virulent cultures of cholera-bacilli, a much smaller dose of which had a prompt lethal effect on non-prepared pigs. The method consists in the intra-peritoneal injection of comma-spirilla cultures prepared on watery extract of calves' thymus or in beef-bouillon.

[1] It is in this manner, as suggested by Koch, that Rochefontaine, in Paris, and Klein, in Bombay, escaped infection after swallowing—the one, pills of cholera-dejecta, the other, a liquid supposed to contain comma-bacilli.

maïne on the mucous membrane of the lower part of the ileum. Any agent tending to destroy or inhibit the development of the organism, that could be transported unchanged to this part of the bowel, there to exert its specific effect, would probably be of service both in preventing the development of the disease and in diminishing its virulence if it already existed.

Because of salol having a lethal action on comma-spirilla in the presence of pancreatic juice, which latter promotes its decomposition into salicylic acid and phenol, Loewenthal and others have urged its use both as a prophylactic and as a remedy for the developed disease. But since salol is promptly dissociated into its components by the action of the alkaline juices of the duodenum, and as the nascent salicylic and carbolic acids formed are quickly converted into soluble salts, it is unlikely that any portion of the drug will reach the lower segment of the ileum in quantity sufficient to exert a favorable effect, unless the alkalinity of the bowel is abnormally feeble, or doses are resorted to that are not compatible with safety.

Hydronaphthol is a comparatively insoluble substance, dissolving in the proportion of 1 : 100 of boiling water, which on cooling largely precipitates, leaving a solution about 1 : 1000. In cold water it is soluble to the extent of 1 : 2000. Its solubility in the bowel is unaffected by the action of the gastric or the intestinal secretions. Sufficient, however, enters into solution to exert a very powerful effect on putrefactive processes in these viscera. In doses of from three to five grains, three or four times a day, it readily checks a tendency to intestinal flatus, and though possessing no astringent property in itself, it will usually promptly jugulate a diarrhea, evidently through its antiseptic action. One of the most intractable cases of chronic dysentery I ever encountered, in which profuse hemorrhages from the bowel frequently occurred, as a result of intestinal ulceration, and which had resisted all ordinary treatment, including injections of silver nitrate solutions, was controlled with surprising readiness by the use of this medicament. Intestinal hemorrhage ceased within a few days after its first administration, and diarrhea soon after. So much confidence have I in this drug as an intestinal antiseptic, that I have used it for a number of years as the only medicament in nearly every case of enteric fever that I have treated, lately combining the Brand method with it. In no case in which it has been resorted to early in the course of the disease has the attack been a severe one, and few plunges have been necessary. My results having been so invariably good with hydronaphthol in intestinal affections of mycotic origin, I feel constrained to urge its trial as both a prophylactic against and a remedy in cholera. A suitable dose would be from five to ten grains three or four times daily. As it has a slightly retarding effect on gastric digestion, but none whatever on duodenal digestion, it may be prescribed in keratin-covered pills, the coating of which is soluble in the alkaline secretion of the duodenum.

Hydronaphthol should be especially of service in early choleraic diarrhea, to check which a preparation of opium is usually given. Though there is no doubt, from an abundant experience, that opium cannot ordinarily be resorted to too early in cases of diarrhea during the prevalence of cholera, it must be borne in mind that, though often successful in checking an intestinal flux, presumably choleraic, treatment by it is but symptomatic, for opium can neither destroy the comma-bacillus nor retard its development; indeed, the experiments of Koch with guinea-pigs indicate that this drug actually favors the latter. Opium apparently acts in early choleraic diarrhea by checking the bowel-irritiation originated by the spirillum, or its peculiar poison. Hydronapthol would presumably act synergistically with opium by its lethal effect on the germ, or at least by inhibiting its multiplication and the production of its leukomaïne.

NOTE.—My friend, Dr. A. A. Ghriskey, assistant in Hygiene in the University of Pennsylvania, has kindly undertaken some experiments for me as to the action of aqueous solutions of hydronaphthol, of various strengths, on pure cultures of the comma-spirillum, a full account of which will be published in a subsequent issue of THE MEDICAL NEWS, they not having been carried to a finality sufficient to permit of a report at this time. I may, however, now state that the indications are favorable as to the utility of the drug in the direction stated.

MEDICAL PROGRESS.

Artificial Immunity to Cholera.—G. KLEMPERER (*Berlin. klin. Wochenschr.*, No. 32, 1892, p. 789) has succeeded in conferring immunity to Asiatic cholera upon lower animals by treatment with modified cultures of comma-bacilli. Guinea-pigs bore without detriment intra-peritoneal injections of 1 c.cm. of cholera-bacilli that had been kept for three days at a temperature of 104.9°. If the injection was repeated after an interval of twenty-four hours and two more injections, each of 1.5 c.cm., were then given, also at intervals of twenty-four hours, the animals on the fifth day survived injections of an otherwise lethal dose (1 c.cm. of a twenty-four-hour culture). Animals treated in like manner with cultures that had been kept for two hours at a temperature of 158° also survived lethal injections. Other animals that received a single injection of 2.5 c.cm. of cultures that had been kept for two hours at a temperature of 158°, likewise withstood a lethal dose two days later; it was determined that immunity existed seventeen hours after the protective inoculation.

While intravenous injections of 1.5 c.cm. of ordinary bouillon-culture of cholera-bacilli proved lethal to rabbits, a larger quantity was necessary if the culture had been kept for two hours at a temperature of 158°. Immunity to cholera was conferred upon rabbits by intra-

venous injections, in quantities short of lethal, of cultures of comma-bacilli that had been kept for two hours at a temperature of 158°. The best results were obtained by injecting 3 c.cm. of such cultures four times, at intervals of two days. Immunity was found to exist three days after the last injection. Guinea-pigs were rendered immune to cholera by inoculation with the serum of protected rabbits. The protection was most certain if the inoculation was practised three hours before the injection. When the inoculation was practised later, death was retarded, but not prevented. Among the rabbits rendered immune to cholera was one already immune to pneumonia. With the serum of this animal it was possible to confer upon guinea-pigs protection from cholera and upon mice protection from pneumonia.

The view is expressed that, unlike what takes place in man, intoxication and not infection results when cultures of cholera-bacilli are introduced into the gastro-intestinal tract of guinea-pigs, and dependent in degree upon the number of organisms introduced. It was ascertained that the degree of immunity necessary to protect from the intoxication resulting from the introduction of cultures into the alimentary canal had to be greater than was necessary to protect from intra-peritoneal infection. This immunity was, however, attained by two injections of 2.5 c.cm., with an interval of twenty-four hours, of the culture kept for two hours at a temperature of 158°, as well as by the injection twice, night and morning, of 2 c.cm. of the blood-serum of an immune animal.

Guinea-pigs to which had been administered by the mouth cultures of cholera-bacilli in quantities short of lethal, subsequently withstood lethal quantities given in the same way. This result corresponds with the immunity observed in human beings after an attack of Asiatic cholera. Cultures through which a constant current of 20 milliampères was passed for twenty-four hours were capable of conferring immunity in a manner and degree comparable to that conferred by cultures kept at a temperature of 158° for two hours.

Successful Evacuation of a Cerebellar Abscess.—DEAN (*Lancet*, No. 3596, p. 250) has reported the case of a girl, fourteen years old, who for five years had a purulent discharge from the right ear. For three weeks there had been pain in the head, especially in the mastoid region, where the skin was boggy and dusky. Consciousness was perverted and there was marked bilateral optic neuritis. The right tympanic membrane had been destroyed, and the middle ear was filled with flabby granulation-tissue. The mastoid process was opened and about half a dram of pus evacuated. The bone was curetted and the cavity irrigated. The lateral sinus was found to be pervious. Improvement followed the operation, but some days afterward, symptoms of intracranial compression appeared: headache, drowsiness, diminished frequency and intermittence of the pulse, depressed temperature, vomiting, derangement of respiration, and dilatation of the pupils. After the head had been shaved and sterilized, a semicircular flap of skin, just above and behind the right ear, was made, and the periosteum reflected. The pin of a trephine was placed an inch behind and a half inch above the center of the external auditory meatus, and a disc of bone, three-quarters of an inch in diameter, was removed. The dura was incised and a small hydrocele-trocar was inserted six times in different directions in the temporo-sphenoidal lobe, but no pus escaped. A few drams of cerebro-spinal fluid escaped from the lateral ventricle. The lateral sinus was found to be pervious. It was now decided to explore the right lobe of the cerebellum. By means of forceps, sufficient bone was chipped away downward and backward for half an inch to expose the lateral sinus and the dura below it. The latter was incised and the trocar introduced. At the second insertion pus escaped. A large trocar was then inserted, and finally a pair of sinus-forceps. More than an ounce of pus escaped. A rubber drainage-tube was introduced and the dura mater carefully laid over the surface of the brain, but not stitched. The usual outer dressing was applied. After the operation the condition of the patient progressively improved and the optic neuritis subsided. A slight purulent discharge from the right ear persisted.

The Surgery of the Biliary Passages.—KÖRTE (*Samml. klin. Vorträge*, 1892, No. 40) has reported the interesting features of twenty-two cases in which operations were performed on the biliary passages. Twelve cases were operated on for gall-stones; eleven of these were in women, all of whom had borne children. Six cases presented dropsy of the gall-bladder, in five associated with gall-stones. In four cases there was empyema of the gall-bladder, three with stones. In three cases the ductus choledochus was occluded by stones. Three cases died: one of choledoch-occlusion, of asthenia; one of suppuration of the liver; one of empyema of the gall-bladder, with calculi and carcinoma of the liver; none in consequence of the operation. In some cases multiple operations were necessary, but in all, the functions of the biliary apparatus were conserved, and in none did a fistula remain. Cholecystotomy was performed at one sitting five times; in two sittings twice. Cholecystotomy is considered the best procedure for empyema of the gall-bladder, for disease of the bladder-wall, as well as for occlusion of the choledoch duct. In case of gall-stones, without disease of the walls of the gall-bladder, and if the common duct is patulous, opening the gall-bladder and evacuation of its contents, followed by suture, are preferable. Cholecystotomy is the most rational procedure in most cases of calculi in the gall-bladder. In four patients with empyema of the gall-bladder serious sequelæ developed; in each, the bacterium coli commune was found in the bladder. One case of hepatic abscess, with perityphlitic suppuration, was successfully operated on. In seven cases subphrenic abscess was found; six of the patients recovered. In three cases hydatid cysts of the liver were opened. Of two cases of gunshot injury of the liver one recovered after laparotomy and tamponade; the other died from injury of the colon and peritonitis.—*Fortschritte der Medicin, 1892, No. 12, p. 470.*

The Diagnosis of Cholera.—LASER (*Deutsche medicin. Wochenschr.*, No. 32, p. 793) recommends the following diagnostic procedure for the recognition of the stools of a patient suspected to be suffering from an attack of cholera. A number of tubes of peptone-bouillon or peptone-gelatin are inoculated with the stools of the sus-

pected case, and a like number of tubes are inoculated with the stools of a presumably healthy person. Placed in the thermostat, in the course of twenty-four hours the tubes inoculated with the cholera-stool present a characteristic odor absent from the others. Care must be taken not to use too much fecal matter, as the odor of this may obscure the odor developed. If also a film has formed, and if in the course of forty-eight hours a reddish color can be produced by the addition of sulphuric acid, the diagnosis is absolute.

A Traumatic Neurosis.—COESTER (*Berliner klin. Woch.*, No. 31, 1892, p. 776) has reported the case of a lad, seventeen years old, in which, following a contusion of the ring-finger of the right hand, anesthesia of the right upper extremity, and of the right side of the head, face, and trunk to the level of the seventh rib, appeared. Tactile sensibility, thermic sensibility, and the sensibility to pain were abolished. The muscle-sense was preserved and there was no loss of power or wasting. The condition disappeared after six weeks of application of strong currents by means of the faradic brush.

The Differentiation of Hysteria and Epilepsy.—From a study of the urine in cases of hysteria and epilepsy, respectively, BOSC (*Compt.-rend. hebdom. des Séances de la Soc. de Biol.*, No. 28, p. 723) has determined that the chemical constitution and the toxicity of the twenty-four hours' urine are below the normal in cases of hysteria, and above the normal in cases of epilepsy. The urine passed immediately after an epileptic attack, in contrast with that passed after an hysterical attack, presents a diminution in the alkaline phosphates and an increase in the earthy phosphates.

Paradoxical Patellar Reflex.—EICHHORST (*Centrabl. f. klin. Med.*, No. 31, 1892, p. 641) has reported a case of acute anterior poliomyelitis in process of recovery, in which a tap upon the patellar tendon was not followed by contraction of the quadriceps femoris, but by contraction of the tibialis anticus, extensor hallucis longus, and extensor digitorum communis longus, at a time when voluntary power was beginning to return in the previously paralyzed but now responding muscles. The contraction was active, but slow, protracted, and vermicular.

Conservative Treatment of Articular Tuberculosis.—BIER (*Beiläge zum Centralbl. f. Chirurgie*, 1892, No. 32, p. 57) has treated more than twenty cases of articular tuberculosis, by means of continuous passive hyperemia, with speedy and marked improvement. The idea was suggested by the pathologic experience that hyperemic lungs are rarely, if ever, tuberculous. The desired end is attained by wrapping the joint well to a point just below the seat of disease, while above a rubber tube, protected by a soft bandage, is wound around the part.

Retro-pharyngeal Abscess After Influenza.—FISCHER (*Wiener medicin. Presse*, No. 30, p. 1204) has reported the cases of two infants, eleven and six months old, respectively, in each of which, following an attack of what was considered to be influenza, a retro-pharyngeal abscess developed, recovery following incision and evacuation. In neither case could disease of the vertebræ be detected.

THERAPEUTIC NOTES.

The Ice-cradle.—SOLTAU FENWICK (*Berliner klin. Wochenschr.*, No. 31, 1892, p. 767) describes a device that has been employed at the London Fever Hospital for ten years in the treatment of cases of typhoid fever, and, more recently, of cases of pneumonia attended with hyperpyrexia. An ice-cradle is made by suspending over the patient, in bed, by means of iron frames, a number of zinc buckets, kept half-filled with ice and inclosed in a light covering. The patient is covered with a muslin sheet, and provision is made for the circulation of the air in the cradle. The temperature of the patient is to be taken at least every four hours, and if it falls to 100° the apparatus is to be removed. If a sense of chilliness appears, hot bottles are to be applied to the feet.

For Oxyuris Vermicularis.—Enemata containing naphthalin are recommended for the expulsion of oxyures vermiculares. For a child:

℞.—Naphthalin . . . . gr. xv–xx.
Olei olivæ . . . . ʒx–ʒij.—M.
S.—As an enema.

For an adult:

℞.—Naphthalin . . . . ʒj–ʒjss.
Olei olivæ . . . . ʒij–ʒiij.—M.
S.—As an enema.

MINERBI.

Creasote by Enema.—In the treatment of pulmonary tuberculosis GRASSET (*Nouv. Montpel. Méd.*, No. 25, p. 500) administers creasote by the bowel, morning and evening, preceded by a simple enema. An emulsion is made as follows:

℞.—Tinct. opii . . . . . ♏jss.
Creasoti . . . . . ♏xv.
Olei olivæ . . . . . ʒijss.
Vitell. ovi . . . . . No. j.—M.

—*Gaz. Méd. de Paris*, No. 31, p. 371.

Hot Rectal Injections have been effectively employed for the relief of painful affections of the abdominal and pelvic viscera, such as renal colic, ovarian neuralgia, pelvic peritonitis, and dysmenorrhea. The water used must have a temperature of from 105° to 112°; a pint is at first carefully injected; after this (mixed with fecal matter) has been expelled, another pint is injected; a third injection is practised, and the fluid is usually retained.—FORER, in *Correspondenzblatt für Schweizer Aerzte.*

Salol for Cholera.—Based upon laboratory and animal experimentation, LOEWENTHAL (*Deutsche medicin. Wochenschr.*, 1892, No. 32, p. 738) has recommended salol in the treatment of cholera. Thirty grains should be given as the initial dose, followed hourly or half-hourly by doses of from seven and a half to fifteen grains. Gonzalez is quoted as having treated fifty-three cases of cholera in the manner outlined, with but three deaths.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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Subscription Price, Including Postage in North America.

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SATURDAY, SEPTEMBER 17, 1892.

REVISION OF THE CODE OF ETHICS OF THE AMERICAN MEDICAL ASSOCIATION.

WE take for granted the acquiescence of the overwhelming majority of our readers in the necessity for a Code of Ethics; for the reasons given in our editorial on the subject in THE NEWS of July 16th, and for those additionally advanced in the admirable letter of DR. COWAN, in THE NEWS of August 2d. The further question then arises: Is it wise to revise the present Code of the American Medical Association? We think the general sense of the profession would answer that while the Code, as it now stands, is an excellent guide for professional conduct, it is wise to subject it to revision for two reasons: (1) It contains much that is unnecessary and useless; and (2) a respectable number of members of the profession demands its revision and is dissatisfied with certain of its provisions. This dissatisfaction has expressed itself, in the State of New York especially, to such an extent that one of the most important sections of the Code—one, indeed, which has done more than any other to maintain the dignity of the profession—has been formally repudiated. The antagonisms produced by this act of repudiation on the part of the Medical Society of the State of New York have led to bitter dissensions, and created for a time a serious division in the profession. This division, however, is now practically healed, as far as the individual relations of members of the profession in New York are concerned; but the fact that many of those who, through the State Society, have repudiated the Code are permanent members of the American Medical Association puts the Association in a false and illogical position if their membership be recognized, or excludes certain able, eminent and honest co-workers if the laws of the Association be rigidly enforced.

One familiar with the Code contest in New York nine years ago, in looking back, must recognize the fact that this contest led to action that the majority of the partisans of the two sides would now willingly modify. The supporters of the Code would now be willing to see it stripped of useless provisions and redundant language, to say the least. The advocates of the "new code," or certainly the majority of its adherents, would now hardly support a provision which permits unrestricted consultation with homeopathists, eclectics, physio-medicals, advertisers *et id genus omne*. Indeed, most of the so-called "new code" members of the profession in New York now decline to consult with irregular practitioners, and make no exception even in favor of homeopathists.

It is time for the adherents of scientific medicine to come together and stand on common ground. It is now worse than useless to question the motives of those who either rebelled against or defended the Code, except in so far as an inquiry into motives may promote harmony and tend to restore mutual confidence. The American Medical Association should now endeavor to settle the ethical question permanently, and devote itself hereafter to scientific work. The Committee appointed to revise the Code should try to frame a document which will be cheerfully adopted by physicians generally, both individually and through the action of medical societies, leaving agitators and belligerents in the background. We believe that the great majority of those who have repudiated the Code have no desire to degrade the profession to the level of those classed as irregular practitioners, or to meet such practitioners on terms of professional equality; but rather that they honestly believe in the right to render their services to all, whether the patient be at the moment under the care of a physician or of an irregular practitioner. We believe, also, that the defenders of the Code resisted its modification on the highest moral and

professional grounds. If, then, it be conceded (1) that a Code is necessary and (2) that revision of the present Code is wise, the further question arises: In what respects is revision necessary?

All must admit that the phraseology of the existing Code can be much improved in the direction of conciseness. What is needed is a short and clear-cut set of rules for the guidance and direction of the profession, which may be referred to to decide delicate questions in regard to the relations of physicians to each other and to the public, and which, if adhered to, will provide against indiscretions into which members of the profession may thoughtlessly fall. A code of ethics is not for the public and has nothing to do with the "obligations of patients to their physicians" or the "obligations of the public to physicians." It has nothing to do with acts on the part of physicians that render them amenable to penal law. An ideal code is one that will sharply draw the line between the physicians, properly so-called, and irregular practitioners, will secure fair and honorable treatment of younger practitioners by their elders, and will indicate to the young physician, struggling for existence and professional success, both his rights and his obligations.

The code need not, and should not, include general exhortations and maxims that go without saying. In the existing Code there is much of this which well deserves the criticism that it has received. We should strike out such matter as the following: The "duties of physicians to their patients," which refer to promptly obeying professional calls, treating patients with tenderness, firmness, etc., unnecessarily frequent visits, form of prognosis to patients and friends, abandonment of hopeless cases, the desirability of promoting consultations, general directions for the "support of professional character," pecuniary acknowledgments, and all matter that is indefinite and general. It seems unnecessary, also, to say anything about the services of physicians to each other. This is regulated by custom and circumstances. Article III of the Code, "Of the duties of physicians as respects vicarious offices," refers to a question also regulated by custom and circumstances, and often a matter of special arrangement, except when a physician is called in cases of emergency. These eliminations would leave the Code with all of its useful provisions and reduce its length more than one half.

The Code should clearly and distinctly define the attitude of the profession and provide certain rules for professional conduct. We throw out as tentative suggestions what seem to us the most important points, and invite full and free discussion of the various suggestions, *seriatim*.

1. Every member of the profession knows what constitutes a "regular" or an "irregular" practitioner, but this should be clearly defined.

A physician in regular standing is one legally authorized to practise medicine, who assumes no sectarian designation, such as homeopathist, eclectic, etc., and who does not advertise or otherwise violate the rules of professional conduct embodied in the Code of Ethics.

An irregular practitioner is either one not legally qualified to practise medicine, or, if legally qualified, one who assumes to practise some special general system, or assumes some sectarian designation, as already indicated, or who advertises or violates, intentionally and habitually, the rules of professional conduct laid down in the Code of Ethics.

2. A physician should not meet in consultation with an irregular practitioner or be associated with such an one in the treatment of a patient; but he may properly examine a patient and give an opinion or advice to the patient or friends, or perform a surgical operation, in the case of a patient under the care of an irregular practitioner, without consultation or professional association with such practitioner.

3. A physician should obey, when practicable, all calls to cases of emergency, but should resign the case to the regular attendant as soon as possible. In case several physicians meet in cases of emergency, the patient or friends should be required to select which physician it is desired to retain.

4. A consulting physician should not displace the regular attendant during the progress of a case, unless with the attendant's full consent given in writing, and should avoid taking the place of the regular attendant as the family physician.

5. All consultations, when practicable, should be held in private.

6. The statement of the results of a consultation may be made to the patient or friends, either by the regular attendant or any participant in the consultation whom the regular attendant shall select.

7. Every consultant should be afforded the opportunity for a full examination of the case under consideration.

8. All discussions and opinions expressed in consultations should be kept confidential, if so desired

by the attending physician; and no private communications should be made by a consultant to the patient or friends.

9. Consultants should avoid trivial or unnecessary changes in treatment, and all changes in treatment should be made in the consultation.

10. In case of serious and irreconcilable differences of opinion in a consultation, the regular attendant should be allowed to retain the case, and the consultant or consultants who differ from him in opinion should withdraw, unless, at the request of the patient or friends, and with the consent of the attendant, the treatment be radically changed.

11. It is not decorous or professional for a physician to make friendly visits to a patient under treatment by another physician, except with the full knowledge and consent of the latter; and it is not professional for a physician to express any opinion in regard to the diagnosis or treatment of a case under the care of another physician, except in regular consultation.

12. It is unprofessional and unjust to other physicians to render gratuitous professional services to those able to pay suitable fees, except in cases in which personal relations or obligations render such a course practically unavoidable.

13. All differences between physicians, when they cannot be amicably adjusted by personal conference, should be referred, when practicable, to arbitration by physicians or medical societies, and recourse to courts of law should be avoided as far as possible.

14. A physician should never disclose any fact or circumstance ascertained by him, or communicated to him in his professional capacity, in regard to a patient, his family or friends, except with the full consent of the parties concerned.

15. The following acts on the part of a physician are unbecoming and unprofessional:

a. The granting of "interviews" on professional subjects to representatives of newspapers.

b. The sending of voluntary communications on professional subjects to newspapers.

c. The payment of commissions on fees for professional services.

d. The reception of commissions from pharmacists, surgical-instrument makers, opticians, or others on prescriptions or recommendations.

e. The taking out of a patent or the assumption of a trade-mark on any remedy, article of food or drink, hygienic preparation, surgical, obstetrical or scientific instrument or apparatus.

f. The giving of a certificate or recommendation for any remedy, article of food or drink, hygienic preparation, surgical, obstetrical or scientific instrument or apparatus, which can be used as an advertisement or part of an advertisement.

g. The use or recommendation of any medicinal preparation of which the exact composition or working formula is not published to the world.

h. "Resort to public advertisements or private cards inviting the attention of individuals affected with particular diseases; publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations; to boast of cures and remedies; to adduce certificates of skill and success, or to perform any other similar acts."

16. Physicians holding public professional offices under a city, county, or State appointment or the General Government, may, in their official capacity, communicate, through the medium of newspapers, matters of interest to the public.

17. Physicians may issue for publication bulletins or certificates of disability, in cases of illness of public personages, with the consent of the parties concerned.

These rules of conduct are simple, distinct, and easily understood. If some such Code as suggested were adopted by the American Medical Association and recommended for adoption to the different State Societies, it is probable that it would meet the views even of the Medical Society of the State of New York. Should this happy result follow the labors of the Committee on Revision of the Code of Ethics, it would be difficult to find a logical basis for dissensions on questions of medical ethics.

MATTEISM EXPOSED.

MOST of our readers will remember that for several years a gigantic quackery-fraud has been carried on in England and on the Continent by the proprietors of the so-called cancer-cure of an Italian Count, MATTEI. We cannot understand why the enterprise was never transplanted to our hospitable shores. Our own smart folk have invaded England with less success than MATTEI & Co. would have found here.

For the great vogue of the MATTEI delusion in England, MR. STEAD, the famous London journalist, was largely responsible. There is no doubt as to the sincerity of the enthusiastic sponsor. Having been the means of robbing the people of millions of

dollars, temporarily discrediting medical science, and, after a false hope aroused, plunging thousands into despair, let us hope this "friend of the people" may have learned some little modesty.

MR. STEAD had never consulted any physician as to the pathology or therapeutics of carcinoma, had not an idea about the subject himself, and does not seem to have heard of the fact that no amount of ignorant human testimony as to the cure of disease has a particle of scientific value. He therefore (if the logic is clear) gave the "cure" the most extraordinary free advertisement, and the public rage and private profits both grew to great proportions. But the sincerity of MR. STEAD has proved the very means of exposing the humbug, and his shame must be as great as the disgust of the Matteists.

Chiefly through the editor's over-enthusiasm, a commission of eminent English physicians was appointed to supply and examine undoubted cases of carcinoma treated by the quacks. Great were the difficulties, and many the ludicrous obstacles interposed by the Matteists to seem willing to submit to the tests and yet to avoid the inevitable exposure that would follow genuine investigation. The story is told by DR. POTTER in the *British Medical Journal* of August 13th.

Five cases were finally accepted, and the treatment by the "electric potions" carried on for a year, the disease, of course, in each case growing steadily worse. A most laughable attempt was made to shirk the responsibility by the plea, often used in similar cases, that the members of the examining commission were "unbelievers," and with this specious nonsense even MR. STEAD's faith gave way, and for all sensible people the bubble was thoroughly pricked—but not, be it well noted, for the quack or his poorest dupes.

All that any sensible man can expect to do with quackery is to reduce it to its proper proportions, and allow it its proper *clientèle*. The electric fluid of the Matteists was analyzed and found to be simply, solely, nothing but pure water. The danger of this fraud was in its respectability and popularity. The apparently highest and most intellectual people, LADY PAGET, for example, were taking it up. Even members of the medical profession were, willy-nilly, becoming quiescent or acquiescent, some even using the "remedies." Now the danger is past, and the fraud will settle to its proper level, like astrology, and clairvoyance, and faith-healing, and all that.

We have lately been sagely lectured by an esteemed contemporary as to the unwisdom of ethical zeal against acknowledged popular and powerful medical humbuggery. The quacks, it is lamely said, will die a natural death, and opposition but stimulates them to further and renewed life. The example of the exposure of Matteism is most pat, and we leave our complacent critic with the lesson to ruminate upon. Progress and civilization, including the ease, knowledge, and usefulness of his own life, have been made possible only by "reformers" who saw the little truth, but who also saw the enormous untruth of his fallacious advice.

CHOLERA.

THUS far, cholera has been kept from our shores—unless the announcement be verified that five fatal cases have been detected in New York City. What the ultimate outcome of the present threatening will be is yet uncertain. The experiences of the present time ought prove extremely useful in anticipating a recurrence of the events of the past few weeks. The necessities of an adequate quarantine have already been pointed out—if, indeed, they needed pointing out. The extension of the powers of the President of the United States, defining his right to suspend immigration in times of threatened danger from infectious disease, without the necessity of at the same time placing an embargo on commerce, must also be a subject for early legislative enactment.

There are two other aspects of the present situation that demand special consideration. In the first place, it seems scarcely less than criminal that more than a thousand apparently healthy persons should have been kept on board pest-ships, together with those suffering from cholera, exposed to the risk of infection, under unfavorable hygienic conditions, with water of doubtful quality, without provision for change of linen, unable to sleep from fear or anxiety, and cut off from communication with their friends. Certainly these unfortunate tourists, particularly in the case of American citizens, were entitled to protection, as well as those threatened with danger on shore. Immediate provision should have been made for the landing of the apparently well that had been even remotely exposed to the danger of infection, and these could soon have been released if no symptoms of disease manifested themselves among them.

In the second place, the action of some of the steamship companies in accepting immigrant passengers from infected districts after the quarantine

of twenty days had been announced cannot be too severely condemned. As has been suggested by one of the newspapers, it would not under such circumstances be too severe a punishment to turn back to their sources of departure entire boatloads. It will thus be seen that it is absolutely necessary for the national authorities to dedicate a suitable and sufficient extent of ground for the purpose of isolating the sick from the well.

It is earnestly to be hoped that the lessons of the present situation will not pass unheeded by those to whom is confided the responsible duty of protecting the health and welfare of the people of the United States, of relieving them of unnecessary anxiety and of preventing loss of life and loss of trade.

CORRESPONDENCE.

THE REVISION OF THE CODE.

To the Editor of THE MEDICAL NEWS,

DEAR SIR: I do not desire to occupy your columns with a long discussion upon the value of our Code, but simply to emphasize both its necessity and importance. The Code was adopted by the American Medical Association in 1847, and for almost half a century has been the rule and guide of the regular profession in this country. The educated physicians of that day felt the necessity of a Code, to define distinctly our "duties to our patients," "to each other," and "to the public;" and for another reason, if not the most urgent—to defend them from the army of irregulars and quacks that were springing up all over the land, claiming equal rights, and seeking recognition from a generous public.

Nearly half a century has elapsed since the adoption of the Code, and the number of "pathies" and "isms" has increased *pari passu* with the regular profession and, I believe, because so large a part of our profession is either ignorant of the Code or does not carry out its provisions. Abandon it, and at once the greatest anarchy will prevail. There would be then no need for our colleges to raise the standard of medical education and to require a three or four years' course, instead of two, as formerly, for our country is already being overrun with medical colleges and schools of every grade and denomination. How much soever thoroughness and competency may be desired in the medical profession, they cannot be attained if we abandon our Code, for there will be admitted to our ranks both the uneducated and the unworthy. Rather abandon all scientific methods and medical schools than admit a Babel of therapeutics. We may as well admit the fact that we are yet young America, and the day has not yet arrived when we may lay aside this *lex supremis*. Admit, if you please, that among regularly educated physicians no code may be necessary, and that every individual who enters the profession does so from pure and generous motives, and will be actuated alone by a lofty spirit to do right and avoid doing wrong, and yet their remains a necessity for our Code, for our duties to each other and to the public are peculiar and intricate.

Laws are not made for those who would instinctively obey them, but for those who would disregard them but for the penalty attached. Our profession is largely made up of those who enter it from pecuniary motives, and your "Gideon's Band" must be small compared with this large class of workers.

Our Code is but the reflection of one of the greatest laws, human or Divine, "Do unto others as you would that they do unto you." Such a law needs no revision, and you may only mar by "adding to" or "taking from it." Examine, for a moment, the motives of those who would revise and really abandon our Code—for this is the question. Not long since the Medical Society of the great State of New York withdrew her allegiance to the American Medical Association, because of the article in our Code forbidding recognition and consultation with homeopathists. Will our Committee on Revision insert in our Code "*similia similibus curantur?*" or "that to be curative a drug must be capable of producing in the healthy system symptoms similar to those for which it is prescribed, and that it must be given in doses so small that the physiological effects cannot be perceived?" Or will they recommend that these aphorisms be added to our Pharmacopeia? Our dispensatories must then read that dynamization of medicines is proper, and that the millionth or decillionth part of a grain is more powerful than the whole! Shades of Wood and Bache, Chapman, Dunglison, and a host of fathers in medicine! Such are the teachings of the followers of Hahnemann, and constitutes one of the greatest fallacies of the nineteenth century. Whilst regular medicine is progressive and conservative, we dare not admit to its ranks the various "isms" that exist in our land and are anxiously seeking recognition. For almost a century homeopathy has striven for supremacy, and has attempted to build itself up upon the mistakes of the regular profession rather than upon scientific attainments. We are told, however, that Hahnemann's system has been greatly modified and improved by modern homeopathists, and that their practice is more rational. If so, why call it homeopathy?

Let them abandon their creed rather than that we should abandon our Code, and we can admit them to the regular profession only upon scientific attainments, and not *pro favori*. This branch of the profession has many attractions, and among its votaries are found the opulent and influential. It may well be understood how many of the regular profession are clamoring for consultation when large fees may be expected. Eclecticism, Keeleyism, and the "faith cure" may also be admitted, and then surely we will have no need of a code. Rather abandon the profession than our Code, which should be regarded as the Magna Charta of American physicians.

F. M. GREENE, M.D.

GREENE DALE, KY.

NEWS ITEMS.

Obituary.—DR. JOHN J. REESE, the eminent toxicologist, died September 4, 1892, at Atlantic City, seventy-four years old. He graduated from the art department of the University of Pennsylvania in 1836. Three years

later he graduated in medicine, at the same time receiving the Master's degree. In 1859 he was elected treasurer of the Philadelphia County Medical Society. He was president of the Medical Jurisprudence Society in the years 1886 and 1887. For a number of years Dr. Reese was visiting physician to St. Joseph's Hospital and Girard College. He was also medical supervisor of the Philadelphia Orphan Asylum from 1858 to the time of his death.

He was professor of Medical Chemistry in the old Pennsylvania College from 1854 to 1859. In 1865 he was elected professor of Toxicology and Medical Jurisprudence in the University of Pennsylvania. From 1861 to 1865 he was an Assistant Surgeon in the United States Army. Among the published works of Dr. Reese are "An Analysis of Physiology," "The American Medical Formulary," "A Manual of Toxicology," and "A Textbook of Medical Jurisprudence and Toxicology." He edited the seventh American edition of Taylor's "Medical Jurisprudence."

An Army Medical Board will be in session in New York City, N. Y., during October, 1892, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before October 1, 1892, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing C. Sutherland, Surgeon-General U. S. Army, Washington, D. C.

The Philadelphia Polyclinic will open its tenth Fall and Winter Term on Monday, September 26, 1892. Dr. John B. Roberts will deliver the Introductory Address, on "Injuries of the Hip-joint," at eight o'clock on the evening of the same day, in the hall of the college, 1818 Lombard Street, to which members of the profession are cordially invited.

Ontario Medical Journal is the name of a new candidate for professional favor, the first number of which bears the date of August. We fear that the *Journal* has started out wrong, not only in accepting questionable advertisements, but also in the publication of "reading notices."

Krafft-Ebing has been unanimously recommended to succeed Meynert, deceased, in the Chair of Psychiatry in the University of Vienna.

University of Berlin.—Virchow has been elected Rector of the University, and Jolly, Dean of the Medical Faculty.

BOOKS AND PAMPHLETS RECEIVED.

The Diseases of the Stomach. By Dr. C. A. Ewald, Extraordinary Professor of Medicine at the University of Berlin, Director of the Augusta Hospital, etc. Authorized Translation from the Second German Edition, with Special Additions by the Author, by Morris Manges, M.D. With 30 illustrations. New York: D. Appleton & Co., 1892.

Cardiac Outlines for Clinical Clerks and Practitioners, and First Principles in the Physical Examination of the Heart for the Beginner. By William Ewart, M.D. Cantab., F.R.C.P., Physician to St. George's Hospital, etc. Illustrated. New York: G. P. Putnam's Sons, 1892.

Two Cases of Extra-uterine Pregnancy. By J. A. Dickson, M.D. Reprint, 1892.

Opening of the Mastoid Process. By Harry Friedenwald, M.D. Reprint, 1892.

The Treatment of Consumption. By William T. Bishop, M.D. Reprint, 1892.

The Science and Art of Midwifery. By William Thompson Lusk, A.M., M.D.

A View of Modern Surgery, from the Standpoint of a General Practitioner. By James S. Green, M.D. Reprint, 1892.

Athetosis, with Clinical Cases. By Archibald Church, M.D. Reprint, 1892.

A Contribution to Spinal-Cord Surgery. By Archibald Church, M.D., and D. W. Eisendrath, M.D. Reprint, 1892.

A Case of Associated Streptococcus Infection of the Vermiform Appendix and Fallopian Tube. By Hunter Robb, M.D. Reprint, 1892.

Nervo-vascular Disturbances in Unacclimated Persons in Colorado. By J. T. Eskridge, M.D.

The Influence of the Doctrine of Contagion upon the Death-rate from Tuberculosis in the City of Philadelphia. By Lawrence F. Flick, M.D.

Biographical Sketch of D. Hayes Agnew, M.D. By DeForest Willard, M.D.

A Contribution to the Question of Tuberculosis. By Herman Knapp, M.D. Illustrated with 18 Colored Figures. New York: The Knickerbocker Press, 1892.

Twenty-fifth Annual Announcement of the Howard University, Washington, D. C., 1892.

Traitement des Pleurésies purulentes. Par G. M. Debove et Courtois-Suffit. Paris: J. Rueff et Cie, 1892.

Le Rachitisme. Par J. Comby, Médecin des hôpitaux de Paris. Avec 31 figures intercalées dans le texte. Paris: J. Rueff et Cie, 1892.

Appendicite et Périty phlite. Par Ch. Talamon, Médecin de l'hôpital Tenon. Paris: J. Rueff et Cie, 1892.

A Plea for the Medical Expert. By L. Harrison Mettler, A.M., M.D. Reprint, 1892.

Traitement de l'Hypertrophie des Amygdales. Par Dr. E. J. Moure. Paris: Octave Doin, 1892.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by Walter Chrystie, M.D. Vol. III. Illustrated. Philadelphia: Lea Bros. & Co., 1892.

Otitis Media; Abscess of Neck; Death. By E. Oliver Belt, M.D. Reprint, 1892.

Post-febrile Insanity. By Henry M. Hurd, M.D. Reprint, 1892.

Treatise on the Diseases of Women. For the Use of Students and Practitioners. By Alexander J. C. Skene, M.D., Professor of Gynecology in the Long Island Hospital. Second Edition, Revised and Enlarged, with 251 Engravings and 9 Chromolithographs. New York: D. Appleton & Co., 1892.

Temperament. An Address. By David W. Yandell, M.D. Louisville: Printed by J. P. Morton & Co., 1892.

Inert Tubercle-Bacilli: Other more Dangerous Organisms in the Sputum and Lungs. By F. J. Thornbury, M.D. Reprint, 1892.

Report of Twelve Cases of Herniotomy. By B. M. Ricketts, M.D. Reprint, 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, SEPTEMBER 24, 1892. NO. 13.

ORIGINAL ARTICLES.

CHLOROFORM INHALATION.[1]

BY H. A. MCCALLUM, M.D.,

PROFESSOR OF PHYSIOLOGY IN THE MEDICAL DEPARTMENT OF THE WESTERN UNIVERSITY, PATHOLOGIST TO THE GENERAL HOSPITAL, LONDON, ONT.

I DO not intend to go over the whole of the ground of so extensive a subject as the title of this paper indicates, but rather to present points for discussion, to describe what I have seen of the use of chloroform, and, so far as my observations bear me out, to criticise the report of the second Hyderabad Commission.

Here I would apologize in the words of Dr. Reeves, of Dayton, O., who in discussing the same report says: "In view of some of the names attached to these reports my efforts may be deemed presumptuous. I can only say that the day is past when a name caused acceptance of a doctrine which is not in accord with facts." In order to examine some of the deductions in this report it will be necessary to lay down what I consider the physiologic explanation of the terms "asphyxia," "blood-pressure," "cardiac failure," "syncope," and "shock," for it is to the varying interpretation of these that the differences in the findings of the several commissions on chloroform can be traced.

Asphyxia, when complete, is paralysis of the respiratory center. Its cause may be (*a*) the anesthetic alone, (*b*) the anesthetic plus venous blood, (*c*) venous blood alone. Now, it will be patent to anyone that respiration and circulation are so intimately associated that disturbed function of the one brings about changes in the other.

Is not respiratory embarrassment one of the most striking features of valvular disease? On the other hand, how soon must a muscle like the heart tire when it is supplied with venous blood? A poor circulation is a powerful factor in the production of asphyxia, and the rapidity with which this condition may be brought about, or the success of resuscitation, depends largely on the integrity of the circulatory apparatus.

Blood-pressure is regulated in one of the following ways: 1. By the heart directly, in the force and frequency of its beat. 2. By the heart indirectly, by sending impulses along the depressor nerve to the vaso-constrictor center, inhibiting its action. On this point Foster[1] says: "By means of this afferent nerve from the heart the peripheral resistance is, in the living body, lowered to suit the weakened powers of a laboring heart." 3. Emotions, shock, etc., may inhibit the vaso-constrictor center. 4. Chloroform during the first stage may so excite the nerve-centers that impulses from a heart receiving chloroform sent along the depressor nerve to them can set up changes in their unstable condition far beyond the range of the normal. In this way early syncope undoubtedly develops in some cases. 5. The vaso-dilator center may be stimulated, and the blood pressure lowered, but it is doubtful if this nerve-center ever plays any part in the production of syncope. I will attempt further on in this paper to explain the cause and method of the constant lowering of blood-pressure under chloroform.

Cardiac failure need not mean necessarily "primary cardiac arrest." Lowering of blood-pressure, dilatation of the heart-chambers and their incomplete mechanism as a force in the circulation, cessation of cardiac pulsations at or immediately following the cessation of respiration, all these indicate cardiac failure as a very important factor in the death of a patient. Cardiac failure, apart from that caused by anesthetics, as happens when a man makes a speech and falls back dead, or when another goes to bed apparently well and is found in *rigor mortis* in the morning, certainly points to the occasional occurrence of this form of death under anesthesia.

Syncope is sudden lowering of the blood-pressure sufficiently to induce stasis of the cerebral circulation and unconsciousness. Any one of the five causes given for decrease of blood-pressure may act strongly enough to produce syncope. The second is the most likely and frequent cause.

Shock, partial or complete, is inhibition of a number of nerve-centers. The vaso-constrictor center is always more or less involved. In this way syncope and engorgement of the abdominal vessels occur. Central shock may come from excessive doses of chloroform. Reflex surgical shock is a result of the reception of painful impressions in the central nervous system. If shock be reflex, it must have a functionally "beneficial intent" in it. I cannot conceive of any such intent, unless the impulse is one of pain. Here one can readily see such intent in producing anemia of the pain-centers, benumbing

[1] Read at the Ontario Medical Association, June, 1892.

[1] Text-book on Physiology, vol. i, page 325, fifth English edition.

them to impulses. It is a well-recognized fact in physiology that stimulation of an afferent nerve when the animal is under the influence of large doses of chloral brings about a fall of blood-pressure quite similar to that caused by stimulating the depressor nerve. If the animal is under the influence of urari, instead of chloral, a rise of blood-pressure follows such nerve-stimulation.

The condition of the central nervous system determines the rise or fall. If the action of chloral is like that of chloroform, then it is possible to have afferent-nerve stimulation (say of the sciatic)—a case of lowered blood-pressure that simulates shock. Syncope pure and simple is very difficult to separate at times from syncope due to shock. If the shock is to be attributed to some particular surgical manipulation, as evulsion of a toe-nail, an incision or crushing a pile, the syncope from such a shock must begin to manifest itself at once. The time taken in a reflex action is usually about one-fifteenth of a second, and it would fall somewhere within this time. Two other points should enter into the decision, *i. e.*, the degree of anesthesia, and the intent or "organized tendency" of the reflex action. Shock will vary with the individual and the degree of anesthesia.

Having thus reviewed at some length the ground in dispute, I will refer to a few points in the report of the second Hyderabad Commission. The first that I am compelled to criticise is that involved in the statement that chloroform does not exercise a depressing effect on the heart in ordinary inhalation. As a result of its experience the commission freely admits that chloroform causes "a gradual fall of blood-pressure." This is the "constant effect," and this fall at times may even "become dangerous." Now a constant fall of blood-pressure must be due to the action of chloroform on the heart or on the nervous system. If, as the commission claims, the drug does not depress the heart, this fall of pressure must be due to its action on the vasomotor centers. Again, if the fall of pressure is due to the action of the drug on the heart, then chloroform must exercise a constant depressing effect on this organ, else why does the latter seek constantly to lighten its load unless to suit its depressed condition. The experiments of the commission were directed wholly to determine if there were a cessation or slowing of the beat of the heart to account for this fall. No effort was made to determine whether it were due to the drug acting on the medulla or not.

Dr. Lewis E. Shore,[1] together with Professor Gaskell, conducted some valuable experiments on dogs and rabbits that can leave no doubt about the cause of this fall of pressure. "In order to decide this question the following experiment was devised: Two animals were taken, and the arteries supplying the brain of one animal were gradually ligatured so that its brain was completely prevented from receiving blood from its own heart. The arteries, carotids or vertebrals, and in some cases both carotids and one vertebral, were then connected to the corresponding arteries of the other animal, and the brain thus supplied with blood, which returned by one pair of jugular veins cross-connected in a similar way. Care was taken that the brain was at no time without a supply of blood. Thus one animal, the *feeder*, was supplying its own brain by one carotid or one vertebral (and this always adequately sufficed), and also supplying the brain of the other animal, the *fed*. The blood-pressures of both animals were taken from the femoral arteries.

"When chloroform was given in the ordinary way, by inhalation, to the feeder, and the usual effect produced in that animal, namely, fall of blood-pressure and slowing of respiration, chloroform-carrying blood was also sent to the brain, and the brain only, of the fed animal, and there produced insensibility, a rise of blood-pressure, and slowing of respiration. When the fed animal, on the other hand, inhaled chloroform, a marked fall of blood-pressure was produced, and as the chloroform could not reach the brain, this could be due only to a direct action of the chloroform on the heart. If the brain of the fed animal, on the other hand, was richly supplied with chloroform by giving large doses to the feeder, the respiration could be brought into a very precarious condition without the slightest fall of blood-pressure, the chloroform depressing the respiratory center, but not the vasomotor."

Surely this throws a flood of light on this vexed question.

The inference is plainly this: That chloroform produces a constant lowering of blood-pressure because of its depressing action on the heart. As long as the result is the same, clinicians do not care whether this is effected by a primary arrest of the beat or by reason of the overtaxed organ calling on the vasomotor centers to let go their hold on the vessels. The heart controls blood-pressure directly or indirectly, and when the pressure is lowered it is because of a demand on the part of the heart itself. This fact having been established, "this depressing action on the heart is a source of danger always," and by a sudden increase of its effect (which might occur from some idiosyncrasy in the patient) primary cardiac arrest might occur. While it is not to be disputed that a lowered blood-pressure will occur in asphyxia, the greatest care should be exercised in accepting this as an explanation of some of the dangerous cases of lessened pressure seen by the

[1] British Medical Journal, November 21, 1891.

commission. It would seem as if the results were obtained too early to have been induced by asphyxia. It is possible that one might get such tracings from the drug and venous blood acting on the heart, when neither alone would yield any results. Careful examination of Professor H. C. Wood's tracings, showing "primary cardiac arrest," with the blood-pressure at zero, will convince any physiologist that Dr. Lauder Brunton is mistaken in his suggestion that these cases were obtained by reason of a clot forming in the manometer.

The next point in the report with which I strongly disagree is the one on "fatty hearts." The commission draw their conclusions entirely from "phosphorus hearts," a fatty degeneration that apparently does not correspond with the slow change resulting from multiple causes, as found in man. I think that I successfully proved last year that elasticity is a vital property of the ventricular wall, and that the endocardium contained as much elastic tissue as the aorta. Now, a few days of phosphorus will not in all likelihood alter the elastic tissue of the endocardium, leaving out of consideration the question whether it alters this tissue before the death of the animal. On the other hand, in many cases of fatty heart in human beings, the endocardium suffers alike with the myocardium, the result being often due to a process of malnutrition. Here, then, we have impaired elasticity coupled with impaired contractility, a predisposing cause to dilatation of all the chambers under the influence of the anesthetic. I deny that the commission had data on this subject from which they could formulate any conclusion. It is almost past belief that they could deliberately assent to the following statement: "Chloroform in no way endangers a fatty heart, although such patients die from very slight exertions or from fright."

Before closing the question of the influence that the heart exercises on the safety of chloroform administration, a few words concerning the cause of such safety to women in labor might be appropriate. To my mind, no small part of this safety is due to physiologic cardiac hypertrophy occurring in the last months of pregnancy. A second factor is no doubt intra-abdominal pressure on "the splanchnic area," preventing sudden syncope.

Leaving the commission and their findings, let me me say a few words about the dangers of chloroform, their causes, and how to treat them. Before doing so, for the sake of convenience in discussion, I will divide the subject into four stages: first, the stage of excitement; second, anesthesia; third, "profound narcosis," fourth, "recovery."

I will classify the dangers as those of asphyxia, syncope, shock, and "reflex cardiac inhibition" (this last may possibly be a variety of syncope, but I wish to speak of it separately).

In the first stage, asphyxia may arise from nasal or laryngeal obstruction. Spasm of the muscles of respiration, I can scarcely believe, ever led to a fatal result. If nasal obstruction is determined before giving the anesthetic, Dr. Butler, of London, Ont., uses cocaine to the parts. This will be more valuable in ether administration on account of the tendency of the latter to produce turgidity of this membrane. In laryngeal obstruction it is best to open the mouth and turn the patient on the side. With the patient in this position I am doubtful about the utility of pulling the tongue forward. The percentage of vapor in the inspired air is a matter of much importance in the eyes of some. I like a Junker apparatus, not because I think the percentage of vapor can exercise a very prominent part in the safety of the administration, but because of the convenience of this apparatus, and there being so little attention needed in the dosage, one is free to look after the patient. If, during vomiting, fear is entertained that some solid matters may enter the trachea, turn the patient on the side and open the mouth, but do not pull the tongue forward. There is a great deal to be said in behalf of the side as the proper position throughout the administration, the Hyderabad Commission to the contrary notwithstanding.

Syncope, as pointed out already in this paper, is common in the first stage, from the unstable condition of the nerve-centers, and it is most liable to happen if the head is elevated; from this come the dangers of operations under chloroform in the dentist's chair. I like to administer the drug without anything under the head; in fact it would be safer if the head were lower than any other part of the body. The treatment for this condition should be to lower the head, and keep it low, and to practise artificial respiration. Hypodermatic injections of digitalin form a valuable adjunct.

Reflex cardiac inhibition. It is a great blunder to think that inhibition will permanently arrest the heart. As Gaskell pointed out six years ago, inhibition means nutrition. The heart soon bounds on again with renewed energy. I have tried repeatedly in the presence of my class to produce death under chloroform by electric stimulation of the vagus, but have always failed. By opening the abdomen of the dog, and passing the hand up between the left lobe of the liver and the diaphragm, the heart could be felt plainly to be inhibited for only a few seconds at a time. I am, therefore, ready to agree with the commission when they say that "the theory that the danger of chloroform administration is slowing or stoppage of the heart by vagus inhibition is now shown to be absolutely incorrect."

The following facts, copied from notes from a typical case of inhibition occurring during teeth-extraction, may be interesting:

"A. B.: took some digitalis and strychnine the night before, and on the morning of the administration I gave chloroform with a Junker apparatus, but could not abolish the conjunctival reflex. I expected reflex inhibition, and asked one of the dentists to take the pulse. He replied, 'seventy, strong and full.' After six teeth were removed I gave him a few more drops to remove three additional ones. I held my finger on the radial artery throughout, and while pulling the last, a lower molar, the pulse suddenly disappeared, the face blanched, the ear applied to the chest of the patient detected no heart-sounds. This continued for about ten seconds, when I felt a return of the pulse, slow and wiry, at the rate of from twenty to thirty. The dentist took the pulse again at my request, and reported 'thirty, and fine as a needle.' The respirations were of a sighing nature throughout. Immediately the pulse ceased, I lowered the head of the patient and awaited events. He now passed into a distinct rigor; the pulse-rate was gradually coming up and he was becoming conscious. He asked for brandy, which was given him (the administration of any liquid is indicated because the act of swallowing abolishes the inhibitory action of the vagus on the heart). I then gave him a few drops of amyl nitrite, with the happy result of flushing the face and dilating the arteries."

It is in this apparently dangerous condition that the drug is useful, and nowhere else in chloroform inhalation.

Second Stage. The leading danger in this stage of anesthesia is the liability to run into the next stage, that of "profound narcosis." Dr. Balfour, of the General Hospital, London, Ont., speaking of this stage, said: "I have given chloroform to cases, one in particular, in which there appeared to be little or no second stage of comparative safety; no sooner would the reflex be abolished than alarming symptoms would show themselves." On the other hand, the majority of cases can stand considerable pushing of the drug after anesthesia, before profound narcosis is reached. In the vast majority of cases the road along which the patient is to be conducted in safety is wide. Rarely is it so narrow that the most skilful will fail to keep thereon. It is wise in some of these latter cases to complete the operation when the patient is in a condition as nearly as possible to incomplete anesthesia.

Third Stage. In profound narcosis, paralysis of the centers presiding over respiration and circulation is what will occur; the center the most frequent to give way is that of respiration. The second Hyderabad Commission apparently obtained nearly all of their fatal results in this stage—a fact that should greatly diminish the importance of their report. The best treatment here is that of hypodermatic injections of strychnine in full doses and artificial respiration.

Fourth Stage. Professor J. A. McWilliams,[1] as a result of some of the most carefully conducted experiments on chloroform, has demonstrated that the heart-chambers undergo dilatation with this drug, even when it is gently administered with plenty of air. He further points out that this may be greatly increased in a pathologic heart. I have myself seen these effects on the hearts of dogs. It appears to result from very incomplete emptying of the ventricles, and has no relation to vagus-inhibition.

Now, when returning consciousness establishes the line of communication between a dilated and laboring heart, on the one hand, and the medulla oblongata on the other, blood-pressure is sure to fall. Urgent messages from an overloaded and distended heart commanding relief often set up violent action in the nerve-centers. This is not to be wondered at when one remembers that these latter are intoxicated. The vaso-constrictor center, receiving cumulative stimuli from the depressor nerve from the heart, releases its hold on all the vascular areas. The patient is bled into his own vessels. The splanchnic flood-gates have opened wide, and the abdominal vessels become engorged. If the heart has been exhausted it will be an unwilling party to receive back the load it so freely threw off. Efforts at vomiting may express large quantities of blood into the right heart and re-distend it. Here syncope will be repeated, probably leading to a fatal result. The treatment is to lower the head, invert the patient, give hypodermatic injections of digitalin and strychnine in full doses, and to start artificial respiration, and keep it up for a long time. Other remedies are of questionable utility, and may contribute to the death of the patient.

There are reports of cases in which the patients died from the effects of chloroform many hours after the inhalation. In Kirk's cases,[2] seventeen hours had elapsed between the inhalation and death. Another is reported "who died some hours after the operation."[3]

At the end of this paper I present notes of the autopsy of one dying thirty-six hours after the administration of the anesthetic. I have clinical notes of one dying three days after. The operation was simple curetting of the uterus, and was done by a skilful specialist for hemorrhage due to a fibroid. It is a fair inference, that on account of the profound anemia that existed for months, there was fatty degeneration of the heart. The symptoms exhibited by the patient were those of "heart-failure."

Shock calls for morphine and heat. Brandy

[1] British Medical Journal, Oct. 11, 18, and 25, 1890.
[2] Ibid., July 11, 1891. [3] Ibid., July 4, 1890.

(after chloroform is very dangerous) can only be useful when given in narcotic doses. While on the subject of alcohol, I might mention that Professor Stephen Smith, of New York,[1] gets his patients thoroughly drunk with whiskey before giving the anesthetic, the patients "frequently jesting and singing on their way to the operation table." He claims that the patient gets quickly under the influence of the drug with a very small dose. He concludes by saying that "in the last ten years I have followed this method of preventing shock, and in no instance has that complication occurred. Alcohol is very much like chloroform in its physiological action, and, given before chloroform, will diminish the required dose of the latter." On the other hand, Professor H. C. Wood[2] has pointed out that in giving alcohol or ether during the stage of recovery, one runs a great risk of poisoning the patient. Alcohol before chloroform is probably beneficial, especially in habitual drunkards, in diminishing the dose of the latter, but given in the stage of recovery is wrong. Morphine and other narcotics, given before the anesthetic is administered, are said to lessen the dose of it.

Circulatory asphyxia. This mixed form of danger, in which asphyxia is brought about by inefficient circulation, is sometimes seen, and should be treated like syncope.

I would like to call attention to a few points among many directions in the giving of chloroform. Wood[3] called attention to the value of digitalis and strychnine in preventing the lowering of blood-pressure under chloroform. I have been using these two drugs before chloroform for the past year; sometimes I have given them for a few days before operation. If I could not administer these drugs six hours before the anesthetic by the mouth then they were given hypodermatically. They keep up a strong, full pulse, and diminish very greatly the "after-sickness" of chloroform.

In two cases recently, after having given strychnine hypodermatically when the patient was fully anesthetized, I discovered that it immediately antagonized the anesthetic effect of the chloroform. To such an extent was this the case that much larger doses of chloroform were required, and great difficulty was experienced in abolishing the conjunctival reflex. I consequently resolved thereafter to use digitalis alone before the administration of the anesthetic, and keep by me a solution of strychnine in a hypodermatic syringe, ready for an accident.

The second point is to watch well the respiratory movements and the face, as by this means one can see the first signs of cardiac failure in the gasping respiration and the pallid face.

The third point is that one ought not to be afraid to let the patient partly recover in intervals of the operation, if there are any such. Roughly speaking, this gives rest to a tired heart.

The fourth point is: Lower the head in all chloroform accidents. Cardiac failure may simulate asphyxia so closely that the haste and excitement will often leave the physicians (attending on the accident) in blind ignorance regarding the exact character of the danger they are treating. The only contra-indication to this inversion is an abdomen distended with ascites or a tumor which by pressure on the diaphragm may dangerously obstruct breathing.

There are cases that hold the elements of danger in themselves, and no care or skill can guard against a fatal result. The danger rests in the "receiver" not the "giver."

CASES OF DEATH.—Mrs. C., forty-eight years old; abdominal section for ovarian tumor and dermoid cyst, in the practice of Dr. Eccles, of London, Ont. She had no alarming symptoms until twelve hours after recovery from the anesthetic, when she appeared to sink from "heart failure," in spite of all medication, dying thirty-six hours after operation. I was asked to make the autopsy. I found the wound and the abdominal contents normal to the naked eye. The peritoneum was smooth and glistening. The right side of the heart held an ante-mortem clot of one ounce; fluid blood filled the right chambers, while the left side was empty; the valves were normal, and all the chambers dilated. The myocardium was pale, and tore easily. The coronary arteries presented well-marked nodular arteritis, and the left was almost obliterated one inch from its origin. On cutting a section of the ventricular wall and throwing it into a dish of water a coat of oil would immediately float on the surface. The microscope revealed well-marked fatty degeneration of the heart-muscle. There was evidence here and in other organs of general arteritis. Is this not a case of fatty heart receiving the fatal strain from taking chloroform?

MR. M., twenty-eight years old, in the practice of Dr. Fulton, of St. Thomas. A student assisted, but the greater part of the anesthetic was given by the doctor himself. It was a clamp and cautery operation for piles. The patient came out from under the drug some time between the removal of the second pile and its cauterization. The clamp remained on the pile for a few minutes, while the operator was in an adjoining room heating the iron. On his return some more chloroform was given to produce insensibility. It was then discontinued permanently. The second pile was now cauterized, the skin about the anus cleaned, and a dressing applied.

Dr. Fulton then examined the pulse, respiration, and face. On finding them normal, he gathered up his instruments, passing into the adjoining room

[1] THE MEDICAL NEWS, Oct. 11, 1890.

[2] Address on "Anesthesia," International Medical Congress, 1890.

[3] Ibid.

to wash them. The student in charge noticed the patient showing signs of recovery. Suddenly the pulse ceased and the face became deathly white. The doctor hastened to the side of his patient and found him trying to vomit. Natural respiration ceased shortly. The tongue was drawn forward and artificial respiration was practised for a few minutes. The head was lowered over the edge of the bed. Natural respiration returned for about one minute. Artificial respiration was resumed, and continued for about twenty-five minutes. Another medical man now arrived with a battery, which was employed with artificial respiration for some twenty minutes, but the patient was dead.

The Crown ordering an inquest, I attended the post-mortem examination at the request of Dr. Fulton. The following are the post-mortem conditions found:

Abdomen: Engorged abdominal vessels; some fluid blood in the cavity (due very possibly to the undertaker's needle wounding a vessel). Venous congestion of the liver (microscopic examination showed the central veins of the lobules and capillaries leading therefrom dilated, as in acute nutmeg liver; also malarial pigment plentifully).

Kidneys: Right, healthy; the left to naked eye showed changes from normal, viz., very imperfectly marked striæ. From one to four drams of milky fluid (which I think was pus) escaped on cutting into the kidney. Microscopic examination discovered round-celled infiltration that in some parts resembled the commencement of small abcesses.

Evidences of the removal of two piles; all the rest of the abdominal contents healthy to the naked eye.

Thorax: The pericardial cavity contained a dram of cherry-colored fluid. The right ventricle was engorged with fluid blood; the left held one ounce or more. The heart itself was "flabby," and all its chambers were dilated. The valves were apparently healthy (the hydrostatic test was not tried). Microscopic examination showed well-marked fatty degeneration of the muscle-fiber.

The *lungs* were engorged (the apices were like the first stage of a pneumonia). On microscopic examination, sections taken from the apex showed the capillaries to be dilated and so injected that at many points rupture of their walls had taken place. By reason of this, many of the air-cells contained blood. The rupture of the capillaries might have been the mechanical effect of the artificial respiration or due to vasomotor influences. Examination of the trachea and larynx was negative.

Brain: The "vessels of the pia mater were injected in one part." The cord was not examined. (I was compelled to leave before the brain was examined by those attending to the autopsy.)

What was the cause of death? Before I answer that, I wish to state that the post-mortem examination alone should not be relied on exclusively. The clinical history of the case (the symptoms the man exhibited when he was dying) and the treatment must have no small part in determining the cause of death. The engorged right heart and lungs are neither constant nor pathognomonic post-mortem conditions of asphyxia.

Respiration is a pump to the right side of the heart, and exercises a powerful suction-force on the veins during respiration. Physiologists[1] are agreed that "were the heart perfectly motionless the working of this respiratory pump alone would tend to drive the blood from the venæ cavæ through the heart into the aorta." Thus, the pumping action of artificial respiration would engorge the right heart and lungs, so that this condition found post-mortem would represent a result of the artificial respiration, no matter what might be the cause of death. We are, therefore, compelled to rely to a great extent upon the clinical symptoms.

The sudden disappearance of the pulse, the blanching of the countenance, the failure to restore by artificial respiration (natural respiration returned for a minute, excluding paralysis of the respiratory center), leave no doubt of the occurrence of syncope in this case.

BARBER'S ITCH.

BY WILLIAM S. GOTTHEIL, M D.,
LECTURER ON DERMATOLOGY AT THE NEW YORK POLYCLINIC; ATTENDING SURGEON, DISEASES OF THE SKIN, NORTH-WESTERN DISPENSARY, NEW YORK.

THE term "barber's itch" is used by the laity to designate any disease affecting primarily the skin of the bearded portion of the face. The professor of the tonsorial art has been selected as the godfather of a number of distinct diseases whose sole bond of union is in location. This would be unfortunate for the professor, even if it were true that he was the real father and originator of the maladies in question. It is absolutely unjust if, as I think can be shown, the barber has nothing to do with them. He chances to shave a portion of the face prone to be attacked by certain affections, which also commonly occur elsewhere; and, since effect follows cause, and the shaving precedes the itch, therefore the barber causes the disease, and the term remains.

Now, the non-medical mind may be permitted to classify diseases according to their locality. It seems, of late, to have developed an intense hunger for fragments of medical knowledge; and the more indigestible the material with which this hunger is appeased the more likelihood is there of its being rejected or excreted unchanged. The anti-science nature of the ordinary primary and secondary education renders the appreciation of medical facts by the laity an impossibility. To really explain would mean to reëducate them. Since they must have medical knowledge, let them have it in suitable

[1] Foster, vol. i, fifth English edition, p. 219; Landois and Stirling, edition of 1884, vol i, p. 112.

form. Leave them their "barber's itch." But physicians should avoid the term; it is unscientific and meaningless.

It may be an imperfect observation, but my experience teaches me that a large proportion of medical practitioners are not more accurate than the laity in the diagnosis and designation of the diseases of the beard. Barber's itch is still an entity to them; the razor is still the medium of contagion; and arsenic internally is still the means of cure. This is sad, and, what is more important, it leads to non-success in treatment. Yet a little explanation will suffice to straighten out matters.

Three separate and distinct diseases are common upon the bearded face. There are others, but they are of rare occurrence; and others that occur primarily on hairless portions, and may extend to the beard; and still others to which the integument covering the jaws and neck shares a liability with the rest of the dermal covering. These we may leave unconsidered; their rarity and their other symptoms remove them from the category of barber's itch.

The three diseases commonly seen upon the bearded face are:

1. Eczema barbæ, or ordinary eczema.
2. Perifolliculitis barbæ, or sycosis non-parasitica.
3. Trichophytosis barbæ, or sycosis parasitica, or sycosis, or ringworm.

Let us briefly consider their distinguishing features.

1. *Eczema barbæ* does not differ essentially from eczema as it occurs upon other portions of the body. It is a superficial, catarrhal inflammation of the skin, slightly modified by location. It is not necessarily confined to the hairy parts, since the capillary structures are not primarily involved. Hence it may spread from behind the ears, or from the alæ nasi to the bearded face or lip; or, beginning on the hairy skin, it may involve the lips and nose and ears—favorite seats of the eczematous process. The integument affected is reddened and swollen, and secretes abundantly the peculiar gummy serum characteristic of dermal catarrh. The hairs are matted together, and, with the serum, form dry, brownish crusts. In every case, however, the skin itself is intact; a catarrhal inflammation never causes ulceration or destruction of tissue. Removal of the gummy crusts discloses a reddened, inflamed, weeping skin, but no cicatricial tissue or destruction of the hairs. The patient complains much of the itching, as well as of the disfigurement and discomfort caused by the scabs.

2. *Perifolliculitis barbæ* rejoices in as many names as does the heir to a European throne. One of the commonest is sycosis, either alone, or with the adjunct "non-parasitic." This name is to be rejected. It does not describe the disease, and it leads to endless confusion with parasitic sycosis. Both maladies, in fact, are called "sycosis," simply, by different authorities. Perifolliculitis, on the other hand, is descriptive and unmistakable, and it places the malady in its natural relationship with perifollicular inflammations of other portions of the skin.

Perifolliculitis of the beard consists of a pustular inflammation affecting the hair-follicles and the tissues in their immediate vicinity. It therefore commences in the beard, and is strictly limited to it. It begins with the appearance of a few red, conical papules, each of which has a hair implanted in its center. The skin between the papules is unaffected. The cell-exudation soon leads to pus-formation, and we have the characteristic lesion of the disease, an inflammatory pustule pierced by a hair. These hairs, though firmly implanted during the early papular stage, are, of course, loose during the later pustular period, extraction being then painless, the entire hair-sac lying loose in the minute abscess. Not every hair of the area affected is involved, so that there are always healthy tissue and normal hair between the diseased glands. But each hair-follicle affected is destroyed; a minute scar takes its place; other follicles in the neighborhood are subsequently affected; and so, finally, extensive areas may be denuded of hair, and the place of the skin be taken by a thin expanse of cicatricial tissue.

3. *Trichophytosis barbæ* is known as parasitic sycosis (a name to be rejected for reasons already given), and as tinea barbæ, and is simply a ringworm of the beard. It may or may not coexist with ringworm of neighboring or distant parts of the body. When fully developed, its appearance is quite characteristic. The hair of the beard being very deeply implanted, reaching far down into the subcutaneous connective tissue, the growth of the parasitic fungus is not interfered with by the connective tissue of the cutis; it develops freely, and soon leads to the formation of large, deep-seated nodules and tubercles. These masses are characteristic. The surface of the skin may be normal in some places, whilst in others it is fissured, inflamed, or desquamating. The hairs issuing from the nodular masses are broken off close to the skin, and are frayed at their ends, as in ringworm of the scalp. Suppuration around the follicles and permanent destruction of the capillary structures result.

These three maladies, then, constitute the unscientific entity known as barber's itch. The differences between them are usually so marked that the diagnosis is easy.

How are they to be avoided? If the hygiene of the barber-shop were all that is necessary, our task would be an easy one.

Eczema of the beard is in no sense a contagious

disease. It has never been caught by one patient from another suffering from it; it is not inoculable. Yet more than half of the cases of barber's itch are cases of simple eczema. Neither the barber nor any of his customers has anything to do with it.

Eczema of the beard, like eczema elsewhere, is due to certain external and internal conditions. External irritants, chemical or mechanical, will cause it; and an acrid nasal discharge is responsible for a considerable number of eczemas of the upper lip. The internal causes are not very definite; but it is agreed that dyspepsia and inefficient renal action predispose to dermal catarrhs.

The avoidance of this form of barber's itch is, therefore, dependent upon the avoidance of certain external irritants and the care of the general health. Improper—*i. e.*, too strongly alkaline—soaps are especially to be avoided, and the digestive and renal functions should be kept in order.

Nor is perifolliculitis of the beard a contagious disease, save in the limited sense that all pus may be contagious under certain conditions. Irritating powders and cosmetics, exposure to dust, or to intense heat, are the causes of the malady, which is especially likely to occur in those in whom the hair of the beard is stiff and wiry. A localized or mild eczematous condition often causes so much irritation that the finger-nails are freely used, and by these foci of purulent infection pus-organisms are implanted in the hair-follicle. Thus eczema and perifolliculitis frequently coexist, but the predominance of one or the other morbid process is generally marked.

The prophylaxis of perifolliculitis consists, of course, in the avoidance of the agencies that cause it. The face-powders used after shaving are undoubtedly responsible for some cases. Thus, again, in this second variety of barber's itch the barber is entirely innocent.

Ringworm of the beard, the third and last variety, is a frankly contagious disease. Whether or not there is more than one variety of the trichophyton parasite is a question still under discussion; but ringworm of the beard is always derived from another case of ringworm, and this malady is sometimes carried from one person to another by the barber. I say sometimes; I might say rarely, for the chances of contagion in this manner are small. The razor itself touches the skin only with its edge, which is frequently wiped and stropped; the fungus could hardly adhere to its blade. The lather-brush, the towels—but especially the barber's hands and finger-nails—are the mediate carriers of the contagion.

The prophylaxis is cleanliness; boiling of the towels; thorough cleansing of brushes, or, better still, individual brushes and cups; the use of the nail-brush on hands and finger-tips after each shave; with these ringworm of the beard may surely be avoided. There has been improvement in the hygiene of the barber-shop of late years, but enough cheap and careless ones remain to maintain in our dispensaries and clinics a steady, though small, stream of cases of trichophytosis barbæ.

And now as regards the cure of these diseases of the bearded face. They are frequently obstinate, prone to relapse, and annoying to the physician. An accurate diagnosis is necessary, for in certain essential particulars the treatment required differs in these three maladies.

Certain general rules may be laid down. The general health must be cared for; the gastro-intestinal and renal functions must be examined and regulated; sources of irritation—bad soaps, dusting-powders, exposure to dust and to the inclemencies of the weather—must, if possible, be eliminated. Nasal and aural discharges must be cured.

Treatment of Eczema of the Beard.

1. *Dietetic.* Put patients of full habit, hemorrhoidal tendencies, and prone to excesses at the table, upon a carefully regulated diet, mainly vegetable, with meat but once daily, and no alcoholics or coffee or tea. In obstinate cases a milk and farinaceous diet exclusively gives brilliant results. On the other hand, anemic patients should be put on a full, roborant diet.

2. *General.* Saline purgatives should be freely used in the plethoric cases, especially in the form of the natural waters. Anemic cases should have tonics, bitters, cinchona, iron, and strychnine. Alkaline diuretics are indicated in almost all cases, as:

℞.—Potassii citrat. . . . . gr. xx.
Infus. tritici repentis . . . ʒss.
Infus. digitalis . . . ʒss.—M.
S.—Twice daily.

Or,

℞.—Potassii acetat. . . . . gr. xx.
Spts. æther. nitrosi . . . ʒss.
Syrup. aurantii . . . . ʒss.—M.
S.—Twice daily.

Both are to be given in large quantities of water. Arsenic is useless, even in chronic cases.

3. *Local* treatment is most important. Remove all crusts by soaking with olive oil, and, if necessary, by means of soap and warm water; but thereafter, as much as possible, avoid the use of water, which is irritant. Cut off the hair of the affected part to facilitate treatment. Apply one of the following ointments:

℞.—Bismuthi oxidi . . . . ʒj.
Glycerini . . . . ʒss.
Ungt. aquæ rosæ . . . ℥j.—M.

Or,

℞.—Zinci oxidi . . . . ʒj.
Acid. oleici . . . . ℥ss.
Petrolati . . . . . ℥ss.—M.

Zinc paint affords a thorough protection, and is very soothing:

℞.—Zinci oxidi . . . . ʒij.
Mucil. gum. arabic. . . . ℥ss.
Glycerini . . . . ℥ss.—M.
S. Apply with a brush.

In the later, chronic stages, use the diachylon ointment; if the scaling still persists, tar or resorcin must be employed, as:

℞.—Ol. cadini . . . . ʒss.
Pulv. zinci oxidi . . . ʒij.
Amyli . . . . . ʒij.
Adipis . . . . ad ℥j.—M.

Or,

℞.—Resorcini . . . . gr. xv.
Lanolini . . . . ℥j.—M.

Treatment of Perifolliculitis Barbæ.

In a purely local disease, dietetic or general treatment is not necessary, save in so far as applies to the removal of any irritant—cosmetics, snuffs—that may seem to have some etiologic relationship to the malady. Cod-liver oil given internally seems, as in so many other affections, to control the tendency to pus-formation; it should be given freely in obstinate or extensive cases. Calcium sulphide is absolutely useless.

Local treatment. The beard or mustache must be removed from the area affected, as it interferes with treatment. Shaving is liable to further irritate the skin and to cut off the hair so short that it buries itself in the inflammatory papule and cannot be extracted. Have the hair simply cut close. Now epilate every affected hair in the area. If there are too many for one sitting, take them in sections. Hair-bulbs surrounded by pus are loose, and can be removed without causing pain; the proceeding is as rational as to open a furuncle and to remove the splinter of wood that causes it. Even before suppuration has set in, every hair that is evidently the center of inflammatory action should be pulled out. By this means a chief source of irritation is removed and free exit is afforded the sero-pus. In this way, destruction of the hair-follicles and their surroundings, as well as baldness and scarring, are best avoided.

For this purpose a forceps with flat, unserrated blades is more convenient than the ordinary kind Each hair must be extracted singly, traction being made in its axis. The operation is painful, but necessary; it should be repeated at intervals by the physician, since neither the patient nor his friends will have sufficient skill and fortitude to do it themselves.

The way being thus prepared, soothing ointments are to be used. A favorite of mine is the following, which is sedative and very bland:

℞.—Tinct. opii . . . . ʒss–ʒj.
Acid. carbol. . . . . gr. x.
Ungt. aquæ rosæ . . . ℥j.—M.
S.—Apply twice daily; keep on constantly.

A little later, when the first acute stage has passed, astringent applications are in order. Thus:

℞.—Ungt. diachyli . . . . ℥ss.
Ungt. zinci oxidi . . . ℥ss —M.

Or,

℞.—Hydrarg. chlor. mit. . . . ʒss.
Petrolati . . . . . ℥j.—M.

Finally, the following may be employed:

℞.—Ichthyol. . . . . ʒss.
Lanolini . . . . . ℥j.—M.

It is well not to forget, and not to let your patient forget, that perifolliculitis of the beard is frequently a very obstinate disease.

Treatment of Trichophytosis Barbæ.

Here, again, general measures are useless.

Local treatment. Remove the crusts with olive oil, warm water, and soap; then get rid of the excess of hair by cutting—not by shaving—for the reasons already given.

If epilation of the *affected* hairs is required in perifolliculitis, *all* of the hairs must be removed in ringworm. It is impossible to tell with certainty which hairs are healthy and which are diseased. Hence every hair of the affected area and for some distance around it must be pulled out. The process is painful, for the hairs are often firmly implanted; nor does cocaine, either applied externally or injected, help matters much. The pain must be borne, for without removing the hair and opening up a route for our remedies no parasiticide can penetrate to the depths of the follicle in which the mass of the fungus is growing.

Even after epilation it is sometimes difficult to find an agent strong enough. Go at once to:

℞.—Hydrarg. chlorid. corrosiv. . gr. ij–iv.
Glycerini . . . . . ʒj.
Aq. cologniensis . . . ℥j.—M.
S.—Apply twice daily.

Start with the weakest solution, and rapidly increase its strength. For small diseased areas emplastrum hydrargyri or unguentum hydrargyri does fairly well. A solution of the oleate of mercury—from 5 per cent. to 10 per cent.—in oleic acid is of use, and should be painted on twice daily. But in almost all cases we are finally compelled to have

recourse to mercuric chloride, and we might as well start with it. A twelve-grain-to-the-ounce solution has proved necessary in some few cases; of course, such strong solutions must be applied by the physician himself; they cannot be entrusted to the patient.

25 WEST FIFTY-THIRD STREET.

THE PRODUCTION OF IMMUNITY IN GUINEA-PIGS FROM HOG-CHOLERA BY THE USE OF BLOOD-SERUM FROM IMMUNIFIED ANIMALS.[1]

BY E. A. DE SCHWEINITZ, PH.D.,
BIOCHEMIC LABORATORY, BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

THE important results obtained by Behring and Kitasato, Tizzoni and Cattani, Klemperer and Klemperer, and others, with diphtheria, tetanus, pneumonia, etc., led me to undertake a series of experiments upon guinea-pigs for the purpose of studying the effect of the blood-serum from animals immune to hog-cholera. As a source for the blood-serum, I used guinea-pigs that had been immunified by means of the albumose extracted from artificial hog-cholera cultures, and then exposed to the disease by inoculation with the virulent germ.[2] From this latter inoculation the animals had not suffered, and at the time of use had been well for several months. The blood was drawn from the carotid artery into a sterile test-tube, and defibrinated by means of a sterilized glass rod, the overlying serum then being used for injection. Precautions were taken that the blood did not become contaminated while being drawn, and the absence of germs from the serum was carefully tested.

The experiments were as follows:

Exp. 1. Two guinea-pigs, weighing each about one pound, received three c.c. of this blood-serum by a single injection on the inner side of the thigh. This injection was followed by a slight rise in temperature, but no local lesion at the point of injection, though there was a slight inflammation of the skin for four or five days. After ten days these pigs, together with two checks, were inoculated in the thigh with $\frac{1}{10}$ c. c. of peptonized beef-broth hog-cholera culture, one day old. The checks died in seven days. The autopsy showed characteristic hog-cholera lesions; the hog-cholera bacteria in the spleen were abundant. Both treated animals apparently recovered from the inoculation. Four weeks after the inoculation one of the pigs became paralyzed in the hind legs, and finally died five weeks after the inoculation. The autopsy showed the organs to be apparently normal, except for a few small dots on the surface of the liver. Culture showed an absence of hog-cholera germs.

The second treated pig was found dead three months after the inoculation. The autopsy again showed the organs apparently normal, except for a slight injection of the intestines.

There had in these two cases been then a considerable resistance to the disease from a single injection of the blood-serum. As the germ could not be detected by cultures, and the organs, further, were apparently normal, it is probable that some other cause than hog-cholera caused the death of the animals.

Exp. 2. The experiment was repeated upon exactly the same number of animals, and in the same way, with the result that the pigs treated with the blood-serum recovered entirely, while the checks died. The autopsies of the checks showed characteristic hog-cholera lesions and the germs were abundant in spleen and liver. The experiment repeated again gave the same results—a recovery of the treated animals and the death of the checks.

This work, taken in connection with my earlier results in immunifying guinea-pigs,[1] made it apparent that the blood-serum was a potent factor in the production of immunity.

While in the case of the use of the albumose extracted from the artificial sterilized cultures, or in the use of the simply sterilized cultures, from ten to fifteen c.c., or the equivalent, were required for immunization, here only three c.c. of the serum were necessary.

Treatment of Guinea-pigs Inoculated with Hog-cholera with the Serum from Immunified Animals.—I next tried to cure guinea-pigs with the blood-serum:

Several pigs were taken, and all inoculated with $\frac{1}{10}$ c. c. hog-cholera culture, one day old. Two days afterward two of these animals received an injection of 1.5 c.c. of the blood-serum from an immunified animal. The other animals were reserved as checks. The injections with the same quantity of serum were repeated after two days. The result of the experiment was that while the checks died within ten days, the treated animals resisted for from a week to ten days longer, finally, however, succumbing to hog-cholera, as proved by the autopsies.

The experiment was repeated with the same quantity of material, and in the same way, and I succeeded in saving one of the animals, the recovery being entirely satisfactory. All of the checks died. This cure may have been accidental.

At present I am making a more extended series of experiments in this line, beginning the injections with the blood-serum within twelve hours after the infection, and repeating them more frequently. In

[1] Read before the Association of Acting Assistant Surgeons, Rochester, August 15, 1892.

[2] THE MEDICAL NEWS, October 4, 1890.

[1] THE MEDICAL NEWS, October 4, 1890.

this way it may be possible to effect a cure in every instance.

Just at this point in my experiments the copy of Pasteur's journal (*Annales de l'Institut Pasteur*, May 25, 1892,) reached my hands, in which a series of experiments upon rabbits is described by Metschnikoff, with the germ which he considers to be identical with that of our hog-cholera. His results were the same as those I had obtained, an easy immunization by means of the blood-serum. Metschnikoff's injections of the blood-serum were all intra-venous and repeated several times. My injections were subcutaneous. The practical results, however, in both cases were the same.

A few tests were made in order to see if the action of the blood-serum was due to its germicidal properties. These experiments showed that the serum *outside of the body* did not exert a germicidal action on the hog-cholera bacillus, and on this point they also agree with Metschnikoff's work.

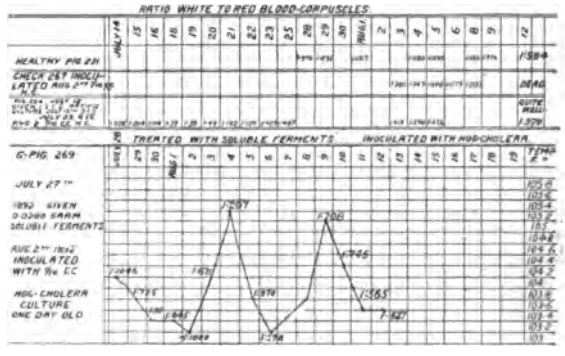
At the same time that the blood-serum experiments were being carried on I had a number of guinea-pigs that were being immunified with the albumose extracted from milk-cultures, the products from purely artificial mineral salt and glycerin-cultures, and with the soluble ferments that I have recently obtained from the hog-cholera cultures.

In view of the observations of Roemer[1], Neisser[2], Canon,[3] Botkin,[4] and Tschistowitsch,[5] I thought it would be of interest to learn if there was a noticeable increase in the number of white corpuscles in the blood of guinea-pigs inoculated with the germ alone, and in the animals while being treated and after treatment, when inoculated.

The blood was taken daily from the ear of the animal, and the hemocytometer of Thoma-Zeiss employed for estimating the number of corpuscles. Toison's solution served for the staining fluid. Beginning twenty-four hours after each injection or inoculation, the counts were conducted till the animals either died or recovered from the disease. To serve as a check upon the number of white blood-corpuscles, a healthy animal was also used. Comparing the figures thus obtained, allowing for natural daily variation and individual error in counting, we find an increase in the number of white blood-corpuscles, both in the checks and in the treated animals. After the first injection for immunifying the animal, the white blood-corpuscles apparently increased, and then returned to the normal as the animal became well. When these same animals were inoculated, the increase of the white corpuscles and return to the normal were equally marked. In the checks, those inoculated with the germs showed a decided increase, and then decrease in the number of white blood-corpuscles, till the animal died. These results, though but preliminary as regards the disease of hog-cholera, may be considered as throwing some light on Metschnikoff's theory of phagocytosis.

While writing this article, Kanthack's[1] paper reached my hands. He reports observations upon the leukocytosis produced by the pyocyaneus-cultures, and sterilized cultures of the vibrio Metschnikovi. As his injections were made intra-venously and with fairly large amounts of the material, the increase in the number of leukocytes was more rapid. He observed, upon repeated hourly examination, first a decrease and then an enormous increase in the number of white blood-corpuscles. In my experiments this increase was not quite so marked, nor was the decrease at first noticed, but as the counting of the corpuscles was not begun till twenty-four hours after the injections, it would not have been observed.

In the appended chart is represented the relative number of white and red corpuscles, as found in a healthy guinea-pig, No. 231, in a check, No. 267, and in two treated and then inoculated pigs, Nos. 224 and 269. In the case of No. 269 the corresponding temperatures are also noted. I may take occasion here to acknowledge the help of my assistant, Mr. Emery, in the estimation of the leukocytes.


RATIO WHITE TO RED BLOOD-CORPUSCLES
HEALTHY PIG 231
CHECK 267 INOCULATED
TREATED WITH SOLUBLE FERMENTS
INOCULATED WITH HOG-CHOLERA
G. PIG 269
JULY 27TH
1892 GIVEN 0.0300 GRAM SOLUBLE FERMENTS
AUG 2ND 1892 INOCULATED WITH 1/10 C.C.
HOG-CHOLERA CULTURE ONE DAY OLD

The results of my work show that there is an easy immunization of guinea-pigs from hog-cholera by means of the blood-serum of immunified animals, and that there is a possible cure of infected animals by a similar treatment. Further, they point to an apparent education of the white blood-corpuscles in the blood of guinea-pigs by means of the bacterial products.

The work agrees practically with that of Metschnikoff upon rabbits.

[1] Berliner klin. Woch., 1891, No. 36.
[2] Wiener Med. Presse, 1892, Nos. 3, 4 and 5.
[3] Deutsche med. Woch. 1892, No. 10.
Ibid., 1892, No. 15.
[5] Berl. klin. Woch, 1891, No. 34.

[1] Brit. Med. Journ., June 13, 1892.

CAN CROUPOUS PNEUMONIA BE ABORTED?

BY THOMAS J. MAYS, M.D.,
PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC, AND VISITING PHYSICIAN TO THE RUSH HOSPITAL FOR CONSUMPTION.

IF one fact is more patent than another, it is that when the medical profession comes to deal with the treatment of croupous pneumonia it is like a rudderless ship in a storm at sea. Why this should be so is not easy of explanation. Here is a disease, constant in its pathology and morbid anatomy, and the physical signs and nature of which are well recognized, and yet the most opposite and varied forms of treatment are and have been advocated, and it is even taught by some of our latest text-books on practical medicine that the expectant or "let alone" treatment is productive of the best practical results.

This seems to be a startling state of affairs, although I must confess that until recently I had no special reason to believe that my work in this direction was followed by any better results than were to be expected by natural recovery from the disease. From later experience, however, which, I trust, will not prove altogether anomalous, I feel convinced that the skepticism that has invaded the profession concerning the utility of therapeutic art in pneumonia is not justified by what may be accomplished. The ground for this faith rests principally on the following detailed results that have been obtained in the treatment of two cases of acute pneumonia under my care in the Polyclinic Hospital. The principal treatment in these cases—which was, I believe, first suggested by Niemeyer—consisted in enveloping the affected chest-area in ice, and, although the cases are too few to warrant any extensive deductions, I think they clearly demonstrate that the local influence of a very low temperature is directly antagonistic to the pneumonic condition. I had long been accustomed to apply ice to the chest in pulmonary phthisis, for the purpose of controlling the acute exacerbations, and with exceptionally good results; hence I did not share in the widely prevalent fear that the application of ice in inflammatory diseases of the lungs is fraught with danger to the patient.

CASE I.—P., a colored female, twenty-five years old, came under my care November 24, 1891, with the following history: Four days previously, when her temperature, pulse, and respiration were normal, Dr. Baer removed her left ovary, which contained a large hematoma. On the morning of my first visit she had a temperature of 103.4°, and a physical examination showed that the lower parts of both lungs were in a state of consolidation, extending the higher upon the right. There was also evidence of pleurisy on this side. The temperature had risen rather suddenly, for on the morning of the 22d it was 99°, while on the evening of the 23d it reached the height of 103.4°, as already stated. On the morning of the 24th ice-bags were applied to the front of the chest upon the right, and to the lateral aspect of both sides of the chest, and, with few intermissions, were kept almost constantly applied for about two weeks. The temperature began to decline immediately after the ice was applied, and, excepting a slight rise on December 3d, sank to nearly a normal level on the eleventh day, as is shown by the following temperature table:

	Morning.	Evening.
November 24th	103.4°	102.4°
" 25th	101.4	100.6
" 26th	100.0	99.8
" 27th	101.0	100.0
" 28th	100.8	100.8
" 29th	99.0	101.0
" 30th	101.0	99.8
December 1st	99.2	99.8
" 2d	99.6	99.8
" 3d	98.8	101.4
" 4th	98.5	99.8
" 5th	99.2	99.8
" 6th	98.6	99.8

Subsequently, the temperature remained practically normal.

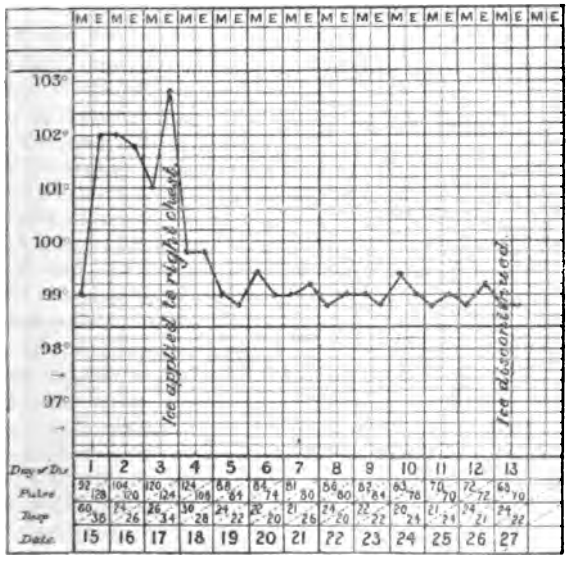
Simultaneously with the fall of the temperature there was a corresponding improvement in the physical signs and symptoms. The depressing effect of the ice on the temperature-curve was immediately shown after its application. When the ice was removed, as it was several times during the course of the disease, the temperature almost invariably rose. This partly accounts for the unsteady temperature-line between morning and evening, which is not shown fully in the foregoing figures—although, on the whole, the woman was of a nervous temperament, and this unquestionably influenced her temperature-curve in a measure. Her nervousness is indicated by the frequency of her respirations; these were 48 per minute at one time, and in four hours they fell to 24, and without any apparent cause.

In addition to the ice she received two ounces of freshly-expressed beef-juice alternately with half an ounce of beef-meal in coffee or chocolate, every two hours, and half an ounce of whiskey in a glassful of milk, every three hours. As far as drugs were concerned she received quinine and phenacetin internally in small doses, and an occasional hypodermatic injection of morphine to produce sleep and to alleviate pain.

In some respects this case was peculiar. There was no cough or expectoration, except on the seventh day, when several mouthfuls of blood were spat up. The woman suffered greatly from dyspnea, although the pulse never exceeded 120 in frequency, and usually oscillated between 90 and 106. It may be said that the defervescence was slow, but when it is remembered how prone any inflammatory

disease of the lung in the negro race is to run into catarrhal disease and become chronic, I think the result on the whole is rather gratifying.

CASE II.—F., a girl, eighteen years old, was first seen on June 17, 1892, when she presented the following physical signs: The pulmonary percussion-resonance was impaired over the whole anterior surface of the right lung, with dulness, approaching to flatness, over the whole posterior and lateral surfaces of the lung. Expiration was decidedly prolonged over the anterior surface from apex to base, and crepitant, subcrepitant, and some sibilant râles were heard over the posterior and lateral portions of the lung. The conditions manifested on the part of the left lung were normal, except that the breathing was puerile. There were abdominal pain, cough, mucous expectoration, and a temperature of 102.8°; the respirations were 34, and the pulse 124. On the afternoon of this day the right chest was well enveloped in ice-bags—a large one in front, and two at the side and posteriorly as much as possible. Another ice-bag had been applied to the head in the morning. Internally the girl received $\frac{1}{25}$ of a grain of strychnine and five grains of quinine every three hours. She was also given an ounce of fresh beef-juice every two hours, and milk and whiskey. On the morning and evening of the following day (18th) the temperature had fallen to 99.8°, and the physical signs were unchanged, except that the prolonged expiration had disappeared anteriorly and was replaced by crepitation. On the 19th the sputum was rusty-colored, and in the evening the temperature



was 98.8°. On the 21st there was a perceptible improvement in the pulmonary percussion-resonance of the whole lung. Very few râles were heard, except at the extreme lower part of the lung. The expectoration had become muco-purulent and rusty. On the 24th no râles could be heard at any part of the chest. The percussion-resonance was vesicular anteriorly and laterally, and but slightly impaired posteriorly. Expectoration had ceased. Strychnine was discontinued on account of a manifestation of its physiologic effects. On the 26th the percussion-resonance continued to be slightly impaired in the right interscapular region. No râles were heard. The respiratory murmur was normal over the whole lung, excepting for slight impairment in the interscapular region.

On the 27th the ice was discontinued, and on the 6th of July, after progressive convalescence, the girl was discharged. The chart illustrates the temperature, pulse, and respiration of this case.

In conclusion, I do not desire to be understood as believing that ice will be found a panacea in pneumonia, but I think the histories of the two cases here related show that cold applications to the chest have a direct, beneficial action on the pneumonic process, not only in the sense of limiting its extension, but in dissipating it. This was especially well demonstrated in the second case, in which the local condition, as indicated by the physical signs, improved immediately after the ice had been employed.

One other feature may be referred to in this connection. In neither of these cases was there anything like a critical period, but merely a more or less rapid subsidence of the local and general disturbance—giving one the impression that, if the disease was not aborted, it received a decided check, and was certainly not allowed to pursue an even and uninterrupted course.

Probably not the least important lesson that may be learned from these cases is that the fear that cold or ice applications in pneumonia are detrimental to the patient is entirely unfounded, and, if this demonstration will serve to allay this apprehension, I feel that these cases have not been reported in vain.

CLINICAL MEMORANDA.

A CASE OF ABDOMINAL NEPHRECTOMY:

With Practical Lessons Thereon.[1]

BY SCHUYLER C. GRAVES, M.D.,
VISITING SURGEON TO ST. MARK'S AND THE U. B. A. HOSPITALS, GRAND RAPIDS, MICHIGAN.

IT is not my purpose to present an exhaustive paper on the subject of nephrectomy. I desire, on the contrary, to report, simply and briefly, the history of a successful case that has occurred in my practice.

Let the fact, then, that the operation is one of considerable interest to surgeons, on account of its comparative rarity and the high mortality-rate with which it is associated, be my excuse for making this report.

The case presents several features of peculiar interest in pointing a moral that, I trust, may spare others many moments of anxiety, which it has been my unfortunate lot to experience.

[1] Read before the Surgical Section of the Michigan State Medical Society, at Flint, Michigan, May 5, 1892.

Mrs. C. S., twenty-nine years old, eight weeks after the birth of her only child, a boy of about seven, noticed a lump in the left side, as large as the palm, and not painful except upon pressure.

Dr. Martin, the first physician consulted, saw the case one and one-half years after the tumor had been discovered. He came to the conclusion that the tumor was splenic, and prescribed tonics and applied the galvanic current.

The patient states that the tumor seemed to grow smaller during the year of current treatment, but increased in size as soon as the treatment was withdrawn.

The patient then had no particular treatment for about two years, at the expiration of which time she consulted Prof. McGraw, at Detroit. Dr. McGraw made a diagnosis of enlarged and dislocated spleen, and recommended non-interference. He declined operating and advised the patient to return home, giving her, at the same time, some medicine which he said he hoped would check the growth of the tumor. He did a perineorrhaphy upon the patient, however, before she left the Detroit hospital, in the hope of building up a somewhat shattered constitution. This was about two years ago.

Time went on, and no particular change was noticeable in the tumor or in the general health.

In January of the present year the patient fell into the hands of Dr. B. J. Zudzense, of Sparta, Kent Co., Mich., who kindly referred the case to me.

During all of these years the health of Mrs. S. had been feeble; constipation had been the rule; the appetite was at times poor and then abnormally great; she slept badly for weeks at a time; the menstrual functions were normal.

There was no suspicion on the part of the patient that any renal trouble existed; she seemed to pass as much water of normal character as ever. At times the tumor was painful.

When I first saw Mrs. S. she presented a somewhat cachectic appearance, though not at all suggestive of malignant trouble. She was thin and tall ("long for this world," as she expressed it); her weight was in the neighborhood of one hundred pounds.

A solid, movable tumor about the width, length, and shape of an adult hand, lay within the abdominal cavity, on the left side under the linea semilunaris and opposite the umbilicus. The tumor could be pushed upward almost completely behind the ribs, and was also quite freely movable laterally, as well as downward. The abnormality was evidently one of five things: 1. A floating spleen, diseased or not. 2. A diseased and dislocated kidney. 3. A benign neoplasm, or an inflammatory thickening of walls of the colon. 4. Fecal impaction. 5. A tumor of the omentum.

Repeated and unavailing bowel-washings, with large quantities of warm water twice daily, excluded the possibility of fecal impaction, and the analysis of the urine seemed, except in one particular, to indicate no trouble with the kidneys, as the following report will show:

Urinalysis. Mrs. C. S., January 25, 1892 (three days before operation).

1. Quantity (in twenty four hours), thirty ounces.
2. Specific gravity, 1020.
3. Color, amber.
4. Odor, normal.
5. Reaction, acid.
6. Albumin, absent.
7. Sugar, absent.
8. Deposits, absent.
9. Microscopic examination, scattered epithelial cells from the bladder.

The exception referred to is the twenty-four hour quantity, being thirty ounces instead of forty-eight. This is merely a relative matter, and would not excite suspicion unless it proved to be a constant factor.

No evidence of leukocythemia was present.

The woman was anxious to be relieved. She was informed that one of the five conditions already noticed existed; fecal impaction was excluded; a positive diagnosis could only be speedily and accurately made by opening the abdominal cavity and exposing the tumor to sight and touch.

To this proposition the patient readily assented, with the understanding that should anything be found the removal of which would prove extremely dangerous to life, it would be left *in situ*, provided, of course, that its removal was not rendered necessary in order to save her life.

Under these circumstances the operation was undertaken on January 28, 1892, at the U. B. A. Hospital.

After the usual antiseptic preparations, the abdominal cavity was opened by an incision, four inches long, in the left linea semilunaris (Langenbeck's incision) and the tumor was soon exposed. It was almost immediately recognized as the left kidney, which had undergone multiple cystic degeneration. Notwithstanding its previous mobility, a goodly number of adhesions were encountered in its removal, which, however, was quickly decided upon and easily accomplished, the vessels and the ureter being separately ligated with aseptic, braided silk, cut short and dropped into the peritoneal cavity. No notable hemorrhage occurred. A lumbar incision was then made into the abdominal cavity and a large rubber drain inserted and stitched to the integument.

The abdominal incision was closed as follows: The peritoneum was united by a continuous suture of fine, iron-dyed silk, supposed at the time to be aseptic; and the rest of the wound by interrupted sutures of silkworm-gut, which, of course, went down to, but not through, the peritoneum. Antiseptic dressings were applied and one-quarter of a grain of morphine exhibited hypodermatically. The operation occupied about three-quarters of an hour. There was no shock. On the second day tympanites occasioned great distress. The abdomen was tender to touch, but no vomiting had occurred. The temperature was about 100°, the pulse about 100. Opiates were strictly avoided and the patient was placed upon teaspoonful doses of a saturated solution of salts hourly, which, after a few hours, were assisted by enemata of turpentine, glycerin, and soapsuds. This combination, repeated a few times, brought away all of the gas, and in twenty-four hours the belly was flat again and the tenderness gone. From that time, throughout the length of the illness, not the slightest intra-abdominal complication occurred.

The silkworm-gut stitches were removed on the ninth day. The wound was healed, but looked elevated, and the neighboring tissues were somewhat indurated. On the tenth day, the temperature rising to 101.6° and the

wound area feeling more indurated, the line of incision was broken up to the extent of an inch and a pus-pocket exposed. The tip of the little finger introduced into the wound passed through the peritoneum, but nature had evidently walled up the peritoneal side of the incision, ether by lymph or by a fold of omentum, for no intra-peritoneal trouble was present nor did any develop subsequently. On the next morning the temperature and pulse had dropped to normal. In a few days, the temperature rising again, under the belief that the peritoneal silk suture was the sole cause of the mischief, I had chloroform administered, and broke open the wound in its entire extent in search of the suture. A portion of it was found, partially loosened, and caught with forceps. Considerable traction failing to deliver it, and lymph and other inflammatory matters so obscuring the view, it was deemed wiser to keep the wound open and await developments, inasmuch as there was great danger of breaking through the peritoneum and lymph-wall, the extreme thinness of which was very evident to the sense of touch. After several days of waiting, the temperature suddenly mounted to 103.6°, and the pulse to 116. The patient was again anesthetized and the offending suture, considerably looser than before, was removed entirely. The wound smelled foul and was packed with a mixture of iodoform and boric acid after irrigation with mercuric chloride solution (1 : 500), and left open. Mercuric chloride, gr. $\frac{1}{80}$, was administered every four hours, together with a nutrient tonic.

For several days the temperature fluctuated between 100° and 102°, and the patient perspired freely whenever she fell asleep. This perspiration was looked upon as an effort on the part of nature to eliminate a poison, and was not interfered with. No chill occurred during the entire illness. The appetite remained excellent; the tongue moist; the disposition cheerful, and sleep refreshing. The condition gradually improved.

About three weeks after the operation the temperature ranged considerably higher every other day, and this feature became the regular order of affairs. A malarial element seemed present; but the patient had never had any form of malarial fever, although she had for years resided in a swampy country.

Treves, in his recent work[1], writing about the relation between surgical operations and malaria states that, "In a patient who has never had intermittent fever—but who has formerly resided in a malarial district—the wound may apparently give rise to intermittent fever or to intermittent complications," on the theory that "the injury has merely provoked the explosion of a hitherto latent disease."

This seems to have been the case with my patient. At any rate, large doses of quinine had a marked effect upon the character of the manifestations.

At about this time the patient's urine was noticed to have a very strong odor and to be muddy in appearance. Analysis showed the urine to be of a neutral reaction (not alkaline), and to contain triple phosphates in enormous quantity, scattered pus-cells and large numbers of bacteria. The patient was put upon ammonium benzoate (15 grains every four hours), which was gradually diminished in quantity as the urine cleared up and became acid. This it speedily did, urinalysis, in a few days, showing no crystals of triple phosphates. Pus, however, continued to be present in small quantities, occasionally being sufficient to afford a slight trace of albumin.

The last urinalysis, on March 11, 1892, showed still a few pus-corpuscles and scattered epithelial cells from the bladder and ureter.

One other feature of interest is worthy of record. Late in the progress of the case the temperature again suddenly ascended, causing considerable consternation. The cause was finally located in the iodoform mixture which, after non-use for a couple of weeks, had been spread over the granulations on the surface of the wound and had undergone absorption. Bearing upon this point, I quote from Brunton:[1] "In man it (iodoform) may be absorbed from wounds and affect the nervous system, but instead of producing sleep or anesthesia, as in dogs, it usually causes, in slight cases of poisoning, sleeplessness, headache, irritability, and loss of memory."

My patient complained of a bad taste, palpitation of the heart, headache, mental sluggishness, and sleeplessness; but in her case there was a very decided rise of temperature. Brunton does not refer to this latter manifestation; but Shurly, of Detroit, states that in his iodine injections for tuberculosis there is always a marked thermal rise.

The iodoform was withdrawn and the wound again dressed with plain boric acid, and in twelve hours the temperature had fallen to 99°.

The patient sat up on the twenty-eighth day. In a few days, she was wheeled about the corridor in a convalescent chair, and was soon walking unaided about the hospital. She left the city for her home on March 12th, six weeks after the date of arrival.

As to the status of the other kidney, inasmuch as multiple nephritic cystoma is very likely to be bilateral, the chances are against the maintenance of its integrity. At the time of the patient's departure the organ could be felt and easily handled, and seemed to be in fair condition. The same amount of urine was passed as before operation, proving the complete demoralization of the diseased kidney.

A mineral water was recommended for use at home, and urinalyses made since the departure of the patient have shown a continued improvement so far as the urine is concerned. Otherwise the patient is doing exceedingly well, gaining in strength daily, and being occupied more and more in her household duties. In a recent letter she states that she feels splendidly.

In conclusion, I desire to record four practical lessons that this case teaches:

First. The efficacy and value of salts and turpentine in the treatment—particularly the early treatment—of traumatic peritonitis.

Second. The danger of peritoneal suturing as such. (Use silkworm-gut and pass it through the entire thickness of the abdominal wall.)

Third. The possible revival of ancient or lateral paludism in your operations.

Fourth. The susceptibility of patients to the action of iodoform when spread upon a granulating wound-surface.

[1] Manual of Operative Surgery, vol. i, p. 16.

[1] Pharmacology, Therapeutics, and Materia Medica, 3d edition, p. 805.

FAILURE OF DIURETIN TO AVERT URETHRAL FEVER.[1]

BY EDWARD L. KEYES, M.D.,
OF NEW YORK.

I FEEL it incumbent upon me to present a short note in retraction of the claims, or rather pretensions, of diuretin as a drug capable of averting urinary or urethral fever.

These pretensions I put forward modestly at the last meeting of the Society, in Washington, September, 1891, impelled by an unusually successful consecutive series of cases in which, during a number of months, this drug had been freely used and in which there had been no urethral fever.[2]

I claimed nothing except the coincidence of result in a number of consecutive cases, and I promised to investigate further and to report at this meeting.

My report is simple; I need not delay you by detailing cases. In a sufficient number to break all claim for reliability I have administered diuretin freely—and used other precautions—and yet commonplace urinary fever has come on and run the usual course. I am still studying the matter, as we all are, and I trust that sooner or later an infallible prophylactic may be discovered. I have believed that I possessed it several times in my life, but as many times have I been disappointed.

One of the most thorough contributions of recent date upon this subject, in a scientific way, that I am acquainted with is from the pen of Dr. Noël Hallé, in the *Annales des Maladies des Organes Genito-urinaires* for February, 1892, which embodies the present status of conviction of Professor Guyon and his following and the results of the laboratory investigations at the Hospital Necker with the personal work of Hallé and Albarran and citations of recent authorities.

It ascribes all forms of urinary fever—"l'infection urinaire," as they term it—from the simplest rigor to the most pernicious deadly attack, to various but different bacterial infections.

It is needless to say that the subject is not yet cleared up, even by this painstaking study, and the practical side of prevention is hardly touched upon. By such studies light must eventually come, but the way is long and still dark; much mystery surrounds it.

I think I can hardly better illustrate the difficulties attending an attempt at generalization upon this intricate subject than by a detail of one case that illustrates enough well-known features of this peculiar malady to justify its brief reproduction:

A healthy gentleman, thirty-eight years old, with sound kidneys and clear urine, save an occasional urethral shred, consulted me in December, 1891. He had moderate obstructive urethral symptoms, with much suprapubic pain. No. 19 Fr. found two moderate constrictions in the pendulous urethra at the usual sites, but would not pass the bulbo-membranous junction. Several smaller sizes were successively used, but no instrument engaged, so that the attempt to enter the bladder was given up for the day, as the patient's symptoms were not urgent and as no preparation against urinary fever had been made. There was a fair show of blood from the soft deep stricture and a little subsequent hemorrhage, yet all the blood came from in front of the bulbo-membranous junction, beyond which nothing had penetrated. Without other precautions than a little alkaline drink this patient went at once to his home in a neighboring city. He lost some blood and had considerable pain on urinating, but no chill whatever and no elevation of temperature, and his stream became larger and the supra-pubic pains less.

This case illustrates what we so very often see—*i.e.*, a lesion of the mucous membrane drawing blood and some moderate distention of strictures anterior to the triangular ligament, yet no subsequent chill or general reaction, even when no precautions are taken.

This patient now took wintergreen oil freely, continued his alkaline medicine, and filled himself up with quinine. His urine was perfectly clear. In this condition I passed a filiform soft bougie (No. 3 Fr.), in my office, fairly into his bladder. It was slightly grasped on withdrawal, but *brought no blood*. Ten hours later, after reaching home, a few hours after his first urination, he had a violent chill and a temperature of 103°, and within the next forty-eight hours he had five more severe chills, showers of uric-acid crystals and urates, scanty urine containing albumin and casts, and great physical and mental depression. Here, surely, was a good subject for investigation. I gave this patient salol and diuretin freely (gr. xxx shortly before the instruments were again used), and, having him warm in bed, I passed successively No. 3 and No. 6 Fr. soft bougies, bringing a little blood. There was no chill and no reaction whatever, and this was not because he was warm in bed and kept there, as the subsequent history shows.

At the next sitting, under exactly the same conditions, I passed No. 11 French soft bougie. It was very tight: some blood followed, but there was no chill. This was an increase of five sizes French.

At the next sitting I used the same precautions and raised four sizes, to No. 15 French. There was a little more blood than before on the withdrawal of the instrument, but it was slight. All the precautions had been used, yet six chills followed; albumin reappeared and considerable straining on urination and evidences of posterior traumatic urethritis, so that three weeks were allowed to pass before another attempt at dilatation was made. Then No. 15 French was again passed, with all the previous precautions and an extra one.

I recalled Hartmann's statement, made in an article entitled "Fièvre Urineuse,"[1] which I had just read, to the effect that urinary chill was due to the forcible penetration, under a strong urinary effort, of morbid organisms, which were thus driven into the circulation through a newly abraded surface; and I coupled this remembrance with a statement made before this Society by Palmer, of Louisville, that he prevented chill after deep internal urethrotomy by filling the bladder with hot bichloride solution and letting the patient void it after the operation. So I gave the salol and diuretin and after washing the urethra, filled the bladder with a hot bichloride of mercury solution (1 : 3000). Then I passed the No. 15 F. soft bougie, as before. Blood followed, as usual. The patient immediately evacuated, spontane-

[1] Read before the Society of Andrology and Syphilology, June 22, 1892, at Richfield Springs.

[2] THE MEDICAL NEWS, October 31, 1891, p. 505.

[1] Annales des Maladies des Organes Genito-urinaires, Jan. 1892.

ously, his bladderful of hot bichloride solution, and he had no chill and no reaction whatever. I repeated this several times until I reached No. 26 French—the patient's full size, in my opinion—and never a chill or any disturbance followed.

Was it, finally, the bichloride that did the work? I cannot tell, for at last I passed the full-sized instrument without using any precautions. I still brought blood, but no chill followed. My patient was at last acclimated to his bacteria, I suppose. Now he passes his instrument himself, without drawing blood and with no chill.

I have used the bichloride many times since, alone and combined with other means, yet sometimes urinary chill follows. Therefore, I frankly say to-day that I know of no positively certain means of averting urinary chill in every case, but of those I rely on I consider the combination of salol, diuretin, bichloride irrigation, and warmth in bed the best.

109 E. 34TH STREET.

DEATH DURING THE FIRST STAGE OF CHLOROFORM-NARCOSIS.

BY F. W. THOMAS, M.D.,
OF PHILADELPHIA.

THE following report of a case of death under chloroform is presented, because, at the time of its occurrence, its imperfect publication in the newspapers elicited a certain degree of interest, and also for its statistical value in emphasizing the danger of chloroform as an anesthetic.

On July 12, 1892, Mason Boggs, an Englishman by birth, and a "burner-off" by trade, applied to have his left shoulder set.

His appearance was that of a young, well-built laborer.

Three weeks previously the same shoulder had been dislocated, and, according to the patient's statement, the physicians in attendance had "some considerable trouble" in reducing the dislocation. The character of the trouble was not asked. His pulse was strong and regular, slightly quickened, and his respirations were normal. Having once taken ether, he objected to it on the ground that it made him sick. After an unsuccessful attempt to set the shoulder without anesthesia, I determined to administer chloroform to the point of slight relaxation.

A few drops were poured on a handkerchief and held two inches from his nostrils, when immediately a choking sensation, like that produced by ether, was induced. The handkerchief was then withdrawn. After a few moments a second attempt was made, when the patient went into a convulsion and became cyanotic. The anesthetic was withdrawn at once, and artificial respiration and stimulants were resorted to. At first the man appeared to react, his color was restored, and his pulse became full. He then took several deep and regular respirations, turned on his back, and died.

In this case no actual narcosis was produced, and the quantity of the anesthetic used was extremely small. By actual measurement only one and one-half drams of chloroform had been used, of which a large proportion had evaporated while the handkerchief was removed from the nostrils of the patient.

The autopsy, made by Dr. Sidebotham, and which I was permitted to attend by the courtesy of the Coroner, revealed the following condition:

The lungs were normal. The heart was dilated, and its muscular walls hypertrophied and softened. The liver was slightly hardened. The spleen was very large and soft. The stomach contained no food, but was filled with catarrhal mucus, and the mucous membrane was much injected and swollen. The kidneys were enlarged, the left in the greater degree; the capsules were easily removed, and the conective tissue was increased. On section, the kidneys presented the appearance described by the late Dr. Formad as the "cyanotic" kidney. From the employer of the patient I subsequently learned that the man was of very dissipated habits, and especially so in an "alcoholic" direction.

The apparent vigor of the man, the small quantity of chloroform consumed, and the early appearance and fatality of the convulsive stage of narcosis unfortunately emphasize the statement made by Hare,[1] that "In atheletes and drunkards there is a first stage of chloroform-narcosis, characterized by struggling, which it is dangerous to overcome with the anesthetic."

6 MT. AIRY AVENUE, GERMANTOWN.

MEDICAL PROGRESS.

The Influence of Chloroform upon the Course of Normal Labor.—As a result of studies with the tocodynamometer, DOENHOFF (*Archiv für Gynäkol.*, Bd. xlii, H. 2, p. 305) has found that chloroform when given to a degree productive of slight narcosis (analgesia) exerts a paralyzant influence upon uterine contraction. If the narcosis be continued, the sum-total of the force of the contractions progressively diminishes. In slight narcosis the activity of the contractions, as well as the duration of the intermissions and the strength of the pains, becomes irregular. In profound narcosis the intermissions are equally long, and the pains equally feeble. At the conclusion of the narcosis the pains again become more active. The sum-total of the force of the pains immediately after narcosis bears a relation of 2 to 3 to that preceding the narcosis. After narcosis the activity of the pains remains for a considerable time slighter than before narcosis. If previously exerted moderately, the action of the abdominal muscles ceases early during slight narcosis. Soon after narcosis it returns with corresponding force. During the narcosis the abdominal muscles are inert; even after the period of dilatation, if abdominal contractions have been active, they continue after partial narcosis, but with less frequency and in less degree; they cease entirely during profound narcosis. The intermissions become longer early in slight narcosis, and the number of pains smaller.

Pyloroplasty for Cicatricial Stricture.—LIMONT and PAGE (*Lancet*, No. 3593, p. 84) have reported the case of a man, thirty-one years old, who, for fourteen years, following a severe blow in the epigastric region, complained of recurrent attacks of vomiting, dragging pain in the abdomen, loss of flesh, and constipation. The stomach was greatly dilated, and a hard nodule, as large as the distal phalanx of the little finger, could be felt in a situation corresponding with the pyloric extremity of the

[1] Therapeutics, p. 126.

stomach. A diagnosis of traumatic stricture of the pylorus was made, and, after the unsuccessful employment of lavage, operation was determined upon. After the stomach was irrigated with a solution of boric acid, a median incision was made from the ensiform cartilage to the umbilicus. Cicatricial narrowing of the pylorus was found. The cicatrix was excised. The mucous and peritoneal edges of the wound were then sewed together over the muscular coat with a continuous suture of fine silk. The left angle of the wound (terminating in the stomach) was secured to the right angle (terminating in the duodenum) with a Lembert suture of silk. The wound was closed by a double row of Lembert sutures and covered with a graft of omentum. For eight days the patient was fed by the rectum. Subsequently, he took food by the mouth, gradually returning to his ordinary diet. He rapidly regained weight, and was soon able to resume his usual occupation.

Anesthesia.—At the recent meeting of the British Medical Association, DR. LAWRENCE TURNBULL, of Philadelphia, reported that he had gathered statistics of 1898 cases in which anesthetics had been employed. Of this number ether had been used in 1500; chloroform in 298; the A. C. E. mixture in 100. There were 5 deaths during or shortly after anesthetization: 1 from chloroform; 3 from ether; 1 from the A. C. E. mixture. Dangerous symptoms appeared in 12 cases: in 2 from ether; in 9 from chloroform; in 1 from the A. C. E. mixture. Opinion was divided as to the best anesthetic; the majority considered ether, chloroform, and the A. C. E. mixture equally safe. It was agreed that the best method and manner of administering anesthetics is by the cone, various inhalers, and napkins. Ether is to be preferred for weak subjects; chloroform for strong subjects or when disease of brain or kidney exists. The most effective methods of restoring patients threatened with death from anesthetics include inversion, placing the head lower than the body, and administering stimulants hypodermatically: alcohol and atropine, and strychnine. The smallest number of students are taught practically how to administer anesthetics; the remainder are taught theoretically.

Craniotomy for Double Optic Neuritis with Microcephalus.—MILLER (*British Medical Journal*, No. 1647, p. 176) has reported the case of a male infant, eight months old, presenting microcephalus and double optic neuritis. The spine and extremities were almost constantly extended and rigid; the thumbs were adducted and the fingers flexed; the legs were also adducted and crossed. The genitalia were imperfectly developed. There were nystagmus and internal strabismus. The eyeballs were deeply drawn into the orbits. The facial bones were well developed; the lower central incisors were well through the gums; all of the cranial sutures were completely ossified, and the fontanels were obliterated. Delivery had been accomplished with the aid of forceps. The bony eminences of the cranium were but slightly marked; the forehead was receding and narrow, and the circumference of the head was under the normal. The child was strongly built, but restless; it cried a great deal and was habitually constipated. It displayed little intellectual activity. Linear craniotomy was performed, a half-inch of bone being removed throughout an extent of three inches. The improvement was immediate, decided, and progressive.

THERAPEUTIC NOTES.

Potassium Tellurate for the Hyperidrosis of Tuberculosis.—POHORSKI (*Wiener medizin. Presse*, No. 32, p. 1293) reports the employment of potassium tellurate in fifty cases of tuberculosis for the relief of excessive sweating. The remedy was given in doses of from gr. ½ to gr. j daily. In marked cases the sweating ceased after evening doses of from gr. ½ to gr. ss. As a rule, larger doses were required to control the sweating that occurred at night than were required to control the sweating that occurred in the morning or in the course of the day. The good effects of the remedy became apparent a quarter of an hour after ingestion and continued in obstinate cases for from five to seven hours; in mild cases the effect was more protracted. In many cases a tolerance was established, so that it became necessary to increase the dose. Only in exceptional cases were untoward effects upon the digestion observed, which subsided on the withdrawal of the remedy.

For Tonsillitis.—The following prescription is recommended for use as a prophylactic for persons predisposed to the development of tonsillitis:

℞.—Olei menthæ piper. . . . ♏viij.
Acid. carbolic. crystal. . . . ʒj.
Spts. vini rectif. . . . . ʒij.—M.

S.—Ten drops in a cup of warm water, morning and evening, as a gargle.—*Correspondenzbl. f. Schweiz. Aerzte.*

Menthol for Hyperemesis Gravidarum.—WEIL (*Centralbl. f. die gesammte Therapie*, J. x, H. viii, p. 449) reports the successful employment of menthol in the treatment of a case of hyperemesis gravidarum. The drug is best given in oil, of which ten drops of a twenty per cent. solution are placed upon sugar in a spoon and surrounded by more sugar, the dose to be repeated whenever nausea appears.

A Tonic Laxative.—

℞.—Aloin . . . . . gr. ij–iij.
Tinct. nucis vomicæ, Tinct. belladonnæ, Tinct. physostigmatis . . āā fʒij.
Ext. cascaræ fluid. . . fʒvi.—M.

S.—Take thirty drops three times daily, reducing the dose one drop daily.

For Acute Bronchitis.—

℞.—Tinct. sanguinariæ, Tinct. lobeliæ . . . āā fʒj.
Vini ipecac. . . . . fʒij.
Syrup. tolutan. . . . . fʒiv.—M.

S.—A teaspoonful every three hours.

BARTHOLOW.

For Myalgia.—

℞.—Ext. cimicifugæ fluid., Ext. erythroxyli fluid., Tinct. guaiac. ammon. . āā fʒj.—M.

S.—Take a teaspoonful three times a day.

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SATURDAY, SEPTEMBER 24, 1892.

THE PROTOZOA IN HUMAN PATHOLOGY.

AFTER long and exclusive devotion to the study of vegetable organisms it is refreshing to have attention directed to the low forms of animal life known as protozoa as causes of disease; and especially is this satisfactory as such investigation holds out the promise of clearing up the hitherto obscure nature of some of the commonest of human affections.

The favorite ancient theory taught that all diseases depend upon minute animal organisms, so that attention was ever directed to the discovery of such animalculæ. The importance of the large number of vegetable forms has for the time diverted attention from the part played by animal organisms in the production of disease. This has been further contributed to by the fact that few medical men have brought to the study that knowledge of the lower branches of zoölogic science which is requisite for the discovery and description of the protozoan parasites, and among pure zoölogists few have been attracted to this study at all. Furthermore, we have lacked, and still want, methods of cultivation and isolation, such as have made the description, classification, and complete study of bacteria easily possible.

In consequence there are few, if any, of the protozoa of which we can claim to have more than fragmentary knowledge. The awakening has, however, come. General attention is aroused, studies that will facilitate further observations have been made, and even cultivation to several generations has been attained. We may, therefore, hope for the establishment of methods of research that will make it possible to learn the nature and properties of the forms already known, and doubtless also to discover forms at present unknown.

The relation of protozoan forms to malarial fever and to dysentery, and the promise of a solution of the etiology of carcinoma, have added practical interest to a study that heretofore seemed of merely scientific value; and whatever may be achieved in the future will in a large measure be ascribable to the interest aroused by these observations.

Of the three classes of *protozoa—sarcodina, sporozoa*, and *infusoria*—it is noticeable that the most conspicuous, and therefore the earliest and best known, the *infusoria*, are apparently of least importance in human pathology. Everyone who has microscopically studied the excretions or secretions of the body must frequently have seen the conspicuous Flagellata; and when the observations have been made in case of disease and the organisms were abundant, the question of the etiologic relationship must have arisen. It is not unnatural, therefore, that such forms as *Trichomonas intestinalis*, occurring abundantly in the stools in various kinds of diarrhea, have been considered as the cause of diarrhea, of cholera, of typhoid fever, and other diseases. So closely does the intensity of the disease sometimes seem to be related to the number of organisms that, as in the case of ORTMANN (*Berliner klin. Wochenschrift*, August 17, 1891), one is almost forced to the conclusion that by their numbers and activity these organisms may be capable of exciting inflammatory action, if not specific effects. The weight of authority (LEUCKART, CUNNINGHAM, PFEIFFER) is, however, disposed to acquit the infusoria of any participation in the causation of disease, and to explain their presence as saprophytes.

The *sporozoa*, on the other hand, are of immensely greater importance in human medicine, and include a variety of organisms bearing the closest relation to internal and external diseases. It is needless, at this place, to enter into any discussion as to the exact biologic position of the "plasmodium" of malaria, for this could but lead to a general discussion of the life-history of the different protozoan

forms, and the discovery of nothing but the great uncertainty of any classification yet offered.

The malarial organism, as indeed all of the *hematozoa*, bears a striking resemblance to the *sporozoa*, and may, therefore, be considered as one of them. We have still much to learn regarding this organism, regarding the relationship of the different forms seen in tertian, quartan, and irregular ague, and regarding its relationship to the parasites of the blood of birds, frogs, turtles, and other animals. As to its bearing on malarial fever, it may be truthfully said that "not a single observer who has had the necessary training and the material at his command has failed to demonstrate the existence of these parasites" (OSLER); and though it cannot be said that a conclusive demonstration of the causative relationship of the malarial organism has been offered as in the case of bacteria, there is the strongest presumptive evidence for such an assumption.

The detection of the organism as a diagnostic factor has been of extreme value in many instances, and it has served to elucidate the nature of certain cases of fever occurring in irregular paroxysms at intervals of five, six, eight, ten, or twelve days or more. The observation of hematozoa closely allied to the malarial organism in the blood of frogs, turtles, birds, and other animals may lead to a completer knowledge of the life-history of these organisms; and the discovery by DANILEWSKY of acute malarial paroxysms in birds, attended by the presence in the blood of organisms scarcely distinguishable from those found in the blood of human subjects having malaria, adds another link to the chain of evidence in favor of the pathogenicity of the animalcule.

A group of *sporozoa* better and longer known than those just mentioned are those coccidia or psorospermia first observed in the liver and gall-ducts of rabbits, and subsequently also in the intestinal tract of rabbits, mice, and other animals, and finally of man. The peculiar nature of the growths in the liver of rabbits, in association with which psorospermia have been so constantly found, leaves no doubt of the actual causative relation of the organisms to the disease. The great difficulty in the recognition of protozoan organisms is well illustrated by their having been taken, by competent observers, for eggs of *distoma*, though at present such a mistake would no longer be excusable. Macroscopically, however, the resemblance of the nodules in the liver to tuberculous new-growths is not a little marked, as was pointed out by SILCOCK in the description of his case; and it is quite possible that this parasitic invasion may be far commoner than is yet believed or known.

The discovery of psorospermiasis of the liver in man by GUBLER, HADDON, SILCOCK, and others; in the ureters by BLAND SUTTON and TARGETT, is sufficient evidence that the subject is deserving of closer attention than it has hitherto been accorded; for though, from the known life-history (the fact that they do not pass through their various phases in the same host, and therefore repeated ingestion is necessary to bring about pathologic changes) of organisms of this class, it is unlikely that psorospermial invasion is anywhere frequent, it is probable that the disease is more common than is believed.

Of far greater importance is the rôle of coccidia in external diseases, especially various affections of the skin. There seems no longer any doubt that organisms of this class occur in *molluscum contagiosum*, in the *keratosis follicularis* of WHITE or *psorospermose folliculaire végétante* of DARIER, and in *Paget's disease* of the nipples; and the relation of the organism to the extension of the pathologic processes and to the individual cells would indicate a more than accidental relationship. From the papillomatous excrescences of the gall-ducts in the liver of the rabbit or of man to the new-growth in molluscum contagiosum, to Paget's disease, and, finally, to epithelioma and carcinoma, is a sequence of pathologic processes of considerable similarity, and it need not, therefore, occasion surprise that carcinoma likewise is ascribed to psorospermial activity. The magnitude of this assumption is such that convincing proof must be forthcoming before its demonstration can be admitted.

As long as forty years ago VIRCHOW detected certain hyaline bodies within the epithelial cells in carcinoma, but ascribed these formations to hyaline degeneration. Subsequently little attention was paid to these appearances, and rarely was more than passing notice given them until a few years ago, when English observers noted their resemblance to the intra-cellular parasites of lower animals, and suggested their protozoan nature. It cannot any longer be denied that these structures have a distinct existence, and are in no sense products of technique, and the only point at issue is whether they are parasitic or degenerated protoplasm.

In this connection there will, perhaps, be the

same skepticism as attended and followed LAVERAN'S demonstration of the malarial organism, and as BUETSCHLI pronounced in favor of the parasitic nature of this organism, so we have the authority of METSCHNIKOFF in favor of the parasite in carcinoma —authority that on this point is greater than that of VIRCHOW, who still maintains the hyaloid nature of these formations. In the absence of any well-defined structure and of methods of propagation it is, of course, exceedingly difficult to decide the question without frequently repeated observations, but opinion is strongly inclined to view these bodies as protozoan. The frequency with which they have been found in the various forms of carcinoma by different observers (SIMS-WOODHEAD, RUSSEL, RUFFER and WALKER, PODWYSSOZKI and SAWTSCHENKO, and many others), and their absence from other and similar new-growths are sufficient to excite interest, even if no conclusions can be drawn from the facts observed.

Enough has been said to indicate the immense importance of further research along the lines laid down. What is now most needed is some method by which the organisms, if such they be, may be cultivated and studied in their several phases.

Of the last class of protozoa, the *sarcodina*, the group Rhizopoda alone merit consideration here, and of these mainly the ameban organism discovered and described by LÖSCH as the cause of dysentery. This subject has already been fully considered (THE MEDICAL NEWS, July 25, 1891, p. 107; January 16, 1892, p. 79), and for the present we need only point out again the difficulty of classifying these low forms of animal life; for while some writers are content to regard this as a permanent ameban form, there are others (CUNNINGHAM) who look upon it as a phase in the life of an organism that at another period is seen as a monadine, and, like other *infusoria*, is only of secondary importance (a result rather than a cause) in the disease in which it occurs.

Instances of the relation of protozoan parasites to human disease need not be further multiplied. Sufficient has been said to show that we are approaching a fuller knowledge of certain obscure problems in pathology, and though we cannot believe with PFEIFFER that the study of these organisms will grow into a special science, as has bacteriology, we must admit the necessity for further research and the rich promise that it holds forth.

PNEUMATHEMIA.

THIS name was coined by CLESS to denote a condition in which air is present in the bloodvessels.

In the medical literature of the past seventy years, many cases are recorded in which the bloodvessels after death contained air or gas, which did not seem attributable to post-mortem decomposition. In some cases, especially in the course of surgical operations about the neck, death has been supposed to result from the entrance of air into the veins. Such cases have been the subject of much dispute.

Experimental work has been done that proves that very large quantities of air must enter the vessels for death to ensue; thus NYSTEN found the lethal amount introduced into the jugular veins of dogs to vary between 40 and 120 c.c. HARE also proved that quantities of less than 40 c.c. did not kill dogs, and expressed his belief that an amount of air sufficient to cause death in a human being could not possibly enter a vein injured by a surgeon during an operation. LABORDE and MURON have further shown that enormous quantities, 2000 or 3000 c.c., if introduced slowly and at intervals into the circulation of dogs, do not cause death.

While not denying that death really may at times result from the sudden entrance of air into injured veins, WELCH and NUTTALL ("A Gas-producing Bacillus—*Bacillus aerogenes capsulatus, nov. spec.*—Capable of Rapid Development in the Bloodvessels after Death," *Johns Hopkins Hospital Bulletin*, 1892, No. 24) have reported some important investigations that will serve to clear up many, if not all, of these mysterious cases.

In the case of a man who died rather suddenly after repeated copious hemorrhages from a large sacculated aneurism of the aorta, which had ruptured through the anterior thoracic walls in two places, the heart and bloodvessels eight hours after death, were everywhere found to contain gas-bubbles in large amounts. The gas was inflammable, and was, therefore, certainly not atmospheric air. Smear cover-glass preparations of the blood showed myriads of capsulated bacilli wherever this gas was found. The microörganism was isolated in pure culture and found to be an obligatory anaërobe. The bacillus, which varies in size, averaging from 3 to 7 μ in length, is non-motile, does not form spores, is, as a rule, surrounded by a distinct capsule, grows on all ordinary culture-media under anaërobic condi-

tions, and stains well with the usual aniline dyes. Pure cultures in sugar-bouillon, injected into the circulation of rabbits just before death, reproduced in every particular the conditions found in the body of the patient, so far as the presence of gas and the changes caused by the bacillus are concerned. WELCH and NUTTALL express the belief that the bacilli entered the aneurismal sac through the external openings in the chest-wall before death, and, though speaking with reserve on this point, they think that the gas produced may have had something to do with the death of the patient.

We do not know whether cultures have before been made in such cases, but even if they had been made by the ordinary roll and plate methods, it would not be surprising that no results were obtained, since, as has now been discovered, the bacillus is anaërobic. This instance shows the advisability of adding, as a matter of routine, to our ordinary culture-methods at autopsies, a few tubes to be grown in the absence of oxygen, a matter of little difficulty since the introduction of BÜCHNER'S jars.

A CABINET OFFICER OF HEALTH.

IF the wisdom and the necessity of having a National Officer of Health, with a place in the Cabinet of the President of the United States, required demonstration, recent events have amply furnished such demonstration. With a Secretary of Hygiene at the head of a National system of quarantine, the danger of invasion from without by infectious disease would be reduced to an infinitesimal minimum. Such an officer, well qualified, thoroughly equipped, fully authorized, could at once, whenever occasion demanded, institute appropriate measures for the conservation of the public welfare and the protection of the health and lives of the people not only of a city or State, but of the whole country.

The usefulness of such a Cabinet-officer would, of course, not be confined to the exclusion of disease that threatens to enter from without, but would likewise make itself felt in preventing the development of disease and controlling its spread within the borders of our country. By raising to the highest standard the general hygienic condition of the people, the danger of infection of all kinds and from all sources would be greatly diminished, while the power of resistance to disease and the aggregate length of life would be greatly increased, thus saving to the State in the usefulness of its citizens more than any expenditure that could be entailed in the maintenance and administration of the office. It might also be found desirable to place under the control of such an officer the medical direction of the various departments of the Government—the army, navy, marine-hospital service, pension, etc.

A National Health-officer could accomplish a vast deal of good. The question of expenditure, as has been said, could not be raised, because the suppression of a single epidemic of typhoid fever, of scarlet fever, of diphtheria, of smallpox, of yellow fever, or of cholera, with the attendant saving of life and conservation of commerce, would more than compensate for the comparatively small outlay that would be necessary for the administration of the office. At the same time, the profession of medicine, including as it does the arts of sanitation, of hygiene, and of demography, would receive a recognition that, from the important relation that it holds to the welfare of the individual and the community, it deserves to receive. The time is ripe to have a Cabinet Officer of Health.

THE UNITY OF CHOLERA.

TALAMON (*La Médecine Moderne*, 1892, No. 35, p. 543,) adduces numerous arguments in the endeavor to demonstrate the identity of cholera Asiatica and cholera nostras. He points out that epidemics of choleriform diarrhea occur from time to time without evidence of importation, in places in which true cholera has at some period in the past been present. He also refers to the recent epidemic, and to another in 1886, in the neighborhood of Paris, in which clinically the disease was diagnosticated as cholera nostras, but in which bacteriologic investigation demonstrated the presence of comma-bacilli in the intestinal evacuations.

The proposition is a most important one and is worthy of further investigation, in order that its accuracy may be proved or disproved. It would be a most interesting development if it were shown that a disease so deadly as cholera suffers a decided modification of its virulence by changed climatic, meteorologic, and geologic conditions, and perhaps as a result of hygienic and sanitary provisions. The evidence, however, is purely circumstantial, and needs to be substantiated by trustworthy bacteriologic investigation.

It would, indeed, be remarkable if the identity of

cholera nostras and cholera Asiatica had escaped the observation of bacteriologists, more particularly as it has been claimed by FINKLER and PRIOR that they have found in the stools of patients with cholera nostras organisms resembling the comma-bacilli of KOCH.

A corresponding attempt has been made to disprove the specificity of the typhoid bacillus of EBERTH, the identity of which with the bacterium coli commune it has been endeavored to demontrate, thus far, however, we believe without success. In this connection, too, we venture to predict that it will be found that the two forms of cholera, as they have heretofore been recognized, will be found to be distinct.

SELECTION.

THE PLACE OF ANTHROPOLOGY IN MEDICAL EDUCATION.

VIRCHOW, who adds to his other claims to fame that of being the first of living anthropologists, has recently confessed that his attention was directed to the science of anthropology by the difficulties he encountered in the study of the insane. Charcot, again, frequently impresses on his pupils the importance of studying the healthy nude, and of an acquaintance with anthropometric canons, as an aid to the diagnosis of abnormal conditions. These utterances of two of the most honored of our teachers in very different fields suggest that there is a defect in our medical courses which demands, at the least, some consideration. As evidence of the close relationship between anthropology and medical practice, it is enough to mention that in spite of the difficulties we at present place in the way, with a few exceptions (in which zoölogy alone led up to anthropology), the chief anthropologists of the last half-century have been medical men—in not a few cases very distinguished in the profession; at the least, they have started as students of medicine. While every medical man would find a slight acquaintance with anthropology some help in practice, there are certain branches of practice in which some knowledge of anthropology is of especial assistance; for example, practice abroad and asylum practice.

The exact study of madness is making rapid progress; it is beginning to be recognized that the great truth that knowledge means measurement (*scire est mensurare*) fully applies to the brain and nervous system. But in this country the rule-of-thumb method still reigns nearly everywhere.

We are often told that the medical student of to-day is overburdened with study; and, although it must be remembered that the period of his studies is now being enlarged, there is no doubt truth in this statement. It becomes the more necessary, on the one hand, to place in a period antecedent to medical studies proper the preliminary scientific courses; and, on the other hand, to cut away without remorse those branches of knowledge which have ceased to possess any close connection with modern medicine. In certain directions it is probable that the studies of medical students might with advantage be abbreviated or rendered optional. The study of botany, however valuable and fascinating, no longer possesses any special advantage as a preparation for medical practice, now that the physician is very clearly differentiated from the herbalist and "medical botanist." An exact knowledge of the Pharmacopeia also, which once embraced almost the largest part of the doctor's work, may now safely be left to the medical antiquarian. If it is necessary to make room for anthropology by the omission or contraction of other preliminary courses, it is not difficult to put one's finger on studies which for the student of medicine have come to possess a value which is merely traditional.

The time seems to have come when some small preliminary step in the direction here indicated should at length be taken. It is not necessary for the medical man of to-day to know much of the lower animal forms; still less necessary is it that he should have any thorough knowledge of plants. But it is increasingly necessary that he should understand the science of man. — HAVELOCK ELLIS, L.S.A., *in The Lancet, August 13, 1892.*

REVIEWS.

A NEW PRONOUNCING DICTIONARY OF MEDICINE: BEING A VOLUMINOUS AND EXHAUSTIVE HAND-BOOK OF MEDICAL AND SCIENTIFIC TERMINOLOGY, WITH PHONETIC PRONUNCIATION, ACCENTUATION, ETYMOLOGY, ETC. By JOHN M. KEATING, M.D., LL.D., and HENRY HAMILTON, with the collaboration of J. CHALMERS DA COSTA, M.D., and FREDERICK A. PACKARD, M.D. Philadelphia: W. B. Saunders, 1892.

WHILE the late Mr. Henry Hamilton, who was the reviewer's personal friend, was sacrificing his valuable life to this work, he was repeatedly warned not only of this danger, and of the doubtful wisdom of the brightest non-medical mind attempting a distinctly medical task, but also of two more certain and decided errors that he was committing: the non-use of the best works upon medical lexicography, and the complete ignoring of the tremendous number of new word-coinages of the past few years in medical text-books and periodical literature. The best new dictionaries in French and German, the Sydenham, Foster, and *The Century* in English, were not at hand or not utilized, and modern medical text-books and periodical literature were not gleaned.

From the foregoing facts and from others, it gives us positive pain to be compelled by duty to say that the two great mistakes mentioned so far mar the usefulness of the book and belie the title that one wonders at the final permission to publish. We would most gladly have commended the book and its many excellences, but these excellences are neutralized by the fact that the old literature is not included and the new is not known.

A book must be judged by what it pretends to be. Is this "a voluminous and exhaustive hand-book of medical and scientific" words (why does the title say *terminology*)? Alas, far from it! Thus, on the first page: *Abasia* is not given; (it is given as a definition of *astasia*, which it is not). The following are only a few of the

words and terms under the letter *A* unaccountably omitted:

Abirritation, Ablactation, Artificial, embryonic, and inevitable Abortion, The kinds and phenomena of Accommodation, Accrementition, A. C. E. Mixture (not under *mixture* or *A*), many *Acnes, Aërobia* and *Aërobic* (*Facultative Aërobia*), *Anaërobia, Anaërobic, Aërotherapeutics, Aërteriversion, After-images, Albumoses* (several kinds), *Aleze, Allorrhythmia, Alteration Theory, Amphibia, Amphicreatine, Amyencephalus, Amyloses, Anadicrotic, Anakusis, Angeioneurosis, Antithenar, Antilobium, Anther, Apolar, Apollinaris, Apselaphasia, Apus, Arecin, Arthroclasia, Arthroempyesis, Arthrography, Asternal, Asternia, Asymmetry, Athelasmus, Atlodymus, Autoclave, Autopathic, Autophagy, Autosite, Auxocardia* (*Meiocardia* also), etc. Under the letter *D* we find absent *Demography, Delomorphous, Demutization, Denutrition, Deradelphus, Derencephalus, various forms of Dermatitis, Derodymus, Desault, Desmography, Deutoplasm, Devitalize, Diamagnetic, Diaphanoscopy, Diapophysis, Diaster, Diblastic, Dicephalus, Diffraction, Digit, Dilemma, Diphthongia, Diplakusis, Diplococcus, Disparate, Dispareunia, Dispirem, Diver's Paralysis* (*Caisson Disease*, also), *Dochmius, Dolichohieric, Dolichopellic* (*Platyhieric*, also), *Dosimetry, Doyère, Dropped Hand or Wrist, Drum-belly, Dysbasia, Dyschromatopsia, Dystrophy*, etc., etc. The lists would become absurd in length. We add but a few more omissions that in glancing have excited comment: *Pyoktanin, Microphotograph, Toxin, Toxalbumin, Tracheal Tugging, Wallerian Law of Degeneration, Weigert's Method, Virile Reflex, Position of Fetus, Capuron Cardinal Points of, Psychophysics, Karyolysis, Wreath, Rosette, Tuberculocidin, Trendelenburg's Position, Waterhammer Pulse, Ectoplasm, Endoplasm, Endosperm, Eosinophilous, Labarraque's Solution, Polyesthesia, Pithing, Control-animal or Control-experiment, Plate-culture, Chemotaxis, Phocomelus, Hemimelus, Micromelus, Ectromelus, Symelus, Uromelus, Sirenomelus, Proencephalus, Iniencephalus, Exencephalus, Syncephalus, Heterodymus* [one would judge that the authors did not include teratology in medical science!], *Heterogamy, Heterocephalus, Hetero-infection, Epignathus, Hypognathus, Laveran's Organisms, Phenacetin, Creolin, Immunity, Immunization*—but we shall not tire the reader further!

There is some excellent matter in the appendix, but it is rendered utterly useless by the total lack of cross-references from the body of the book. Whatever savors of newness is not even mentioned in the body of the work, as is seen in the Tables of Bacteria, Newer Drugs, etc. To take only two pages as an example: on pp. 796–97, twenty new drugs are mentioned, and not one has a cross-reference, whilst of the twenty, thirteen are not to be found in the dictionary proper.

THE PRINCIPLES AND PRACTICE OF BANDAGING. By GWILYM G. DAVIS, M.D., Member of the Royal College of Surgeons, England; Assistant Demonstrator of Surgery, University of Pennsylvania, etc. Pp. 81. Profusely illustrated. Detroit, Mich.: Geo. S. Davis, 1891.

THE perusal of this volume has given the reviewer genuine pleasure. The author presents his subject in a clear and concise manner under the three divisions: the rolled bandages, the tailed bandages, or slings, and the handkerchief bandages.

In the preface Dr. Davis states that "bandaging, while not a science, is, nevertheless, governed by something more than mere empiricisms, and it is one of the objects of this work to direct attention to the fundamental bandage and to the importance of first learning principles and then their application in the form of the various special bandages." We think that Dr. Davis has more than accomplished the purposes thus set forth, for while bandaging is considered to some extent in the various treatises on general surgery, and more fully in a few published books devoted to minor surgery or to bandaging, the subject of modern bandaging has not previously had the exhaustive attention given it which is displayed in the text of the volume under consideration.

The illustrations are taken from original drawings made by the author, and are numerous and excellent. There are 172 illustrations, which are printed from 23 plates, each plate occupying a separate page. Each illustration is numbered in the text, so that reference to it is easy. The graphic skill shown in the preparation of the sketches conveys with accuracy the lessons of the text and enhances the value of the book.

The book is handsomely printed on good paper with wide margins.

Had the publisher's price ($3.00) been placed at a lower figure, so as more nearly to meet the means of the student's purse, the book would have met with a popular demand as a text-book from this source, for it is certainly the most modern and complete work on bandaging that we have seen.

TRANSACTIONS OF THE THIRTEENTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION. Pp. 165. New York: D. Appleton & Co., 1892.

THIS report of the meeting of the American Laryngological Association held more than a year ago presents a summary of recent investigations in laryngology and rhinology, and the seventeen papers are so uniformly good that it is difficult to make a discrimination.

"The Tonsils in Health and Disease," by Dr. Harrison Allen, is a subject that has awakened considerable interest among the members of the profession, and the article may be read with profit by everyone, although after all we are not informed what is the *function* of the tonsils. The paper that has perhaps been commented upon most widely is that by Dr. Bosworth, in which he discusses nasal disease as a factor in the production of asthma, and the excellent and permanent results obtained by simply removing intra-nasal pressure. Others have also reported similar success with the same treatment. Dr. Delavan gives a very interesting account of the surgical methods employed in the treatment of tuberculous laryngitis. Dr. Robinson deals with the relations of disturbances of the upper air-passages to constitutional diseases. These and other papers of almost equal interest, and by eminent specialists, combine to make the book of value to the profession and constitute a worthy contribution to the literature of the subjects with which they deal.

TEMPERAMENT, DISEASE, AND HEALTH. By FRENCH ENSOR CHADWICK, Commander, U. S. N. New York and London: G. P. Putnam's Sons, 1892.

THIS small effusion of eighty-five pages is a curious rehash of well-known facts and theories, and, while rambling in style and rather indefinite as to its object, contains much that is suggestive. In the first chapter the author discusses the proposition that differences in temperament result from the varying rates of molecular change in different individuals. This seems self-evident when one considers the subject carefully, and yet our author certainly formulates his ideas in such a manner that the amount of influence exerted by this difference in molecular metamorphosis is impressed upon the reader more forcibly than would be the case without some such arguments as are here brought forward.

The second chapter is devoted to a short *résumé* of the facts now known in bacteriology. While it would seem that an undue share of this small volume is devoted to a subject rather remote from that indicated by the title, it is, nevertheless, a well-written and concise account of our knowledge upon the subject of the relations of microörganisms to disease.

The whole substance of the book may be summed up in the following words of the author: "A perfect and normal working of the processes of elimination thus becomes the one sole and vital basis of what we understand by physical health."

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF VIRGINIA.

Twenty-third Annual Session, held at Alleghany Springs, Va., Sept. 13–15, 1892.

FIRST DAY—SEPTEMBER 13TH.

AMONG the invited guests and fraternal delegates present were Dr. J. A. Tanner, of Boston; Dr. J. Price and Dr. G. Betton Massey, of Philadelphia; Dr. S. T. Earle and Dr. Wm. Lee Howard, of Baltimore; Dr. Samuel J. Fort, of Ellicott City, Md.; Dr. Irving C. Rosse, of Washington, D. C.; Dr. Edw. Ricketts, of Cincinnati; Dr. Pratt, of New Orleans. Beside these, there were in attendance about 160 members of the Society from all parts of the State.

During the session Dr. Joseph Price, of Philadelphia, Dr. H. Grey Latham, and Dr. Landon B. Edwards were elected Honorary Fellows of the Society.

The officers elected for the ensuing term are:

President: Dr. Herbert M. Nash, of Norfolk.

Vice-Presidents: Dr. Wm. P. McGuire, of Winchester; Dr. T. James Taylor, of Walthall's Store; and Dr. A. Z. Koiner, of Roanoke.

Recording Secretary: Dr. Landon B. Edwards, of Richmond.

Corresponding Secretary: Dr. J. F. Winn, of Richmond.

Treasurer: Dr. Richard T. Styll, of Hollins, Va.

Chairman of the Executive Committee: Dr. Hunter McGuire, of Richmond.

Chairman of the Publishing Committee: Dr. Hugh M. Taylor, of Richmond.

Chairman of the Committee on Applications for Fellowship: Dr. Wm. D. Turner, of Fergusson's Wharf.

Chairman of the Necrological Committee: Dr. John S. Apperson, of Marion.

To deliver, in 1893, the Annual Address to the Public and Profession: Dr. J. T. Graham, of Wytheville. The subject for general discussion during the session of 1893 is "Chronic Nephritis," in which Dr. R. M. Slaughter, of Theological Seminary, Va., is to be the leader. The place of the next Annual Meeting is Charlottesville, Va., at such a time during October, 1893, as the local profession may select.

The State Board of Medical Examiners for the quadrennial term, to begin January 1, 1893, is to be composed of about the same gentlemen as are now serving on it.

DR. JACOB MICHAUX, of Richmond, delivered the Annual Address to the Public and Profession, announcing as his subject, "The Medical Examining Board." He stated that the only means of reforming medical education was by such a Board. The main points of his address were the absolute necessity for: 1. Preliminary academic examinations before admission to the medical schools is allowed; and 2. Separation of the teaching and examining departments. He suggested that the various State Examining Boards be made Boards of Health. He cited the much higher requirements of the European countries in both medical and academic branches.

The Hunter McGuire Prize of One Hundred Dollars for the best essay on "Tetanus" by a member of the Society was awarded to Dr. Chas. M. Blackford, of Lynchburg, Va.

The results of the investigations were summed up as follows:

1. Tetanus is essentially a tonic spasm of certain muscles which have been thrown into a state of physiologic contraction.

2. Abnormal irritability of the reflex centers in the medulla and cord are caused by it.

3. The physiologic action of certain ptomaïnes, or alkaloids of decomposition formed in the wound, and absorbed therefrom, are the results of this hyperesthesia.

4. These ptomaïnes result from the growth of a specific bacterium called the bacillus of tetanus or the bacillus of Nicolaier, and only from it. Therefore,

5. Tetanus is a toxic disease caused by the infection of a wound by this specific bacterium or its products.

In treatment he recommends that the wound be at once explored and cleaned of all foreign substances with scrupulous care. The recesses of the wound should be opened and a germicide applied. Because of their undoubted power to destroy the ptomaïnes—perhaps through the iodine they contain—iodoform or one of its congeners should be freely used. The chief aids in rendering the wounds thoroughly clean, and which should be used first, are corrosive sublimate and carbolic acid—the iodoform or other iodine combination to be used after disinfection. If tetanus occurs after thorough asepsis and antisepsis, then the wound has been contaminated by some error of omission or commission on the part of the surgeon. The current idea that wounds of the hands and feet are peculiarly liable to be followed by tetanus, is due to the fact that it is more difficult to cleanse them and they are more liable to get dirty.

The first indication is to check the development of the

ptomaïne, should the attack have commenced. To do this the wound should be opened and disinfected, if necessary with the actual cautery. Corrosive sublimate (1 : 250 or 1 : 500) in solution will do as well, and has the advantage of avoiding the shock caused by the curette or cautery. As far as possible, the room should be kept absolutely quiet, in order to avoid peripheral irritation. If possible the bedclothes should be supported by a frame above the patient, so as not to touch him, and of course must be light. Large doses of potassium bromide or chloral should be given by the mouth or rectum, either together or separately. To produce any effect, chloroform and ether would have to be given to full anesthesia, and they are of but doubtful value. Besides, as the patient has difficulty in breathing anyway, it is best not to further embarrass respiration. Curara seems to be indicated, and good results from its use are claimed by some writers. Large doses of opium are frequently serviceable, and digitalis, ammonia, or alcohol may be used as a stimulant.

Among drugs our chief reliance is upon physostigma. The success obtained by the administration of this remedy—a third of a grain subcutaneously, or a grain by the mouth, to be repeated in two hours—has been very gratifying. A more elegant preparation is physostigmine salicylate, by the administration of which subcutaneously the pain and spasm of efforts to swallow are avoided. "Tetanus antitoxine," discovered by Tizzoni and Cattani, has been used hypodermatically with success to cause immunity from the disease, even in highly susceptible animals. The blood-serum of these immune animals is antitoxic, and produces immunity to and cures the disease. Tetanus antitoxine may be obtained in solid form by adding alcohol to the serum of inoculated animals, and evaporating in vacuo.

The Secretary announced as the subject for the "Hunter McGuire Prize of One Hundred Dollars" for the session of 1893: *Obstruction to the Function of Micturition and the Results.* The offer is open to members of the State Medical Societies of Virginia, West Virginia, and North Carolina.

Dr. JOSEPH PRICE, of Philadelphia, Pa., announced that he would offer a *Prize of One Hundred Dollars for the Best History of Surgery and Surgeons in Virginia*, presented by any Fellow of the Medical Society of Virginia during its session of 1893, the conditions of award to be the same as those for the award of the "McGuire Prize."

SECOND DAY—SEPTEMBER 14TH.

DR. H. GREY LATHAM, of Lynchburg, Va., delivered the President's Address. His remarks were of special interest to the State.

The consideration of the subject selected for general discussion, "Vertigo," was taken up by DR. E. T. BRADY, of Marion, Va. He classified vertigo as stomachal, cardiac, cerebral, laryngeal (?), ocular, aural, toxic, and essential. He regards laryngeal vertigo as a form of epilepsy. He claims, in the majority of cases, that vertigo is of nervous origin, rather than due to abnormalities of the intra-cranial circulation. This nervous effect might be due to one of three causes: (*a*) The direct mechanical or chemical effect of poisons or imperfectly oxidized materials in the blood; (*b*) pressure upon centers governing equilibrium; and (*c*) acute localized inflammations, the equilibrial centers being disturbed by unusual impressions caused by and deflected from associated nerve-fibers. Attention was called to the fact that deaf-mutes are free from vertigo, as an indication that the sense of hearing entered largely into its causation. The use of cocaine locally in Ménière's disease was suggested.

DR. WM. C. DABNEY, of the University of Virginia, stated that vertigo is frequently due to the circulation of toxic principles in the blood, and that gastric and renal vertigo are thus to be explained. He recommended, in renal vertigo especially, the use of small doses of morphine—about a tenth of a grain—for temporary relief. Of course, the most important point in all cases is removal of the cause.

(To be concluded.)

CORRESPONDENCE.

INSANITY IN PRIVATE PRACTICE.

To the Editor of THE MEDICAL NEWS,

SIR: The list of works of reference on "Insanity in Private Practice," as given in my paper published in your issue of August 20th, is incomplete and not quite intelligible. I enclose herewith a corrected list of works, which, in justice to both of us, I would request to be printed as an addendum or correction of that which has already appeared.

Yours, truly,

KANKAKEE, ILL. RICHARD DEWEY.

"Sanity and Insanity," Mercier. New York: Scribner & Welford, 1890.

"Manual of Lunacy," Winslow. London: Smith, Elder & Co., 1874.

"A Manual of Psychological Medicine," Bucknill and Tuke. Philadelphia: Lindsay & Blakiston, 1879.

"Manual of Insanity," Spitzka. New York: E. B. Treat, 1889

"Physiology of Mind," Maudsley. New York: Appleton & Co., 1878.

"Pathology of Mind," Maudsley. New York: Appleton & Co., 1882.

"Mental Physiology," Carpenter. New York: Appleton & Co., 1882.

"A Treatise on Insanity," Hammond. New York: Appleton & Co., 1883.

"Diseases of the Nervous System," Gowers. Philadelphia: P. Blakiston, Son & Co., 1888.

"Nerve Prostration," Roose. New York: Wm. Wood & Co., 1891.

"Familiar Forms of Nervous Disease," Starr. New York: Wm. Wood & Co., 1890.

"General Paralysis," Mickle. London: H. K. Lewis, 1886.

"Transactions of the Congress of American Physicians and Surgeons," vols. i and ii, published by the Congress. New Haven: 1889 and 1892, W. H. Carmalt, secretary, New Haven.

For readers of German: "Lehrbuch der Psychiatrie," Krafft-Ebing. Stuttgart: Enke, 1890.

For readers of French: "Clinique des Maladies du Système Nerveux," Charcot. Paris: Veuve Bebé et Cie, 1892.

"Études Cliniques sur les Maladies Mentales et Nerveuses," Falret. Paris: Ballière et Fils, 1890.

Also for general reference: "Manual of Human Physiology," Landois and Stirling; two vols. Philadelphia: Blakiston & Son, 1889.

"A Text-book of Pathology," Hamilton. London: Macmillan & Co., 1889.

COMPLICATION OR COINCIDENCE?

To the Editor of THE MEDICAL NEWS,

SIR: On the 8th of August, 1892, W. M., a young man, twenty-four years old, came to my office suffering from gonorrhea of moderate severity.

Under treatment with daily irrigations of the urethra with warm mild antiseptic solutions and appropriate internal medication, the urethritis almost disappeared, with no complications, at the end of two weeks. Then the patient complained of muscular pain in the right arm and shoulder, so severe as to render him unable to use the arm for any purpose. Examination disclosed spots of tenderness over the upper third of the biceps and middle of the anterior half of the deltoid. There was slight swelling and heat about the joint, but no stiffness or crepitus, and no pain on manipulation. There was, however, marked pain on active motion.

The temperature with the onset of the pain rose to 103° F. At the end of the first day this was reduced to 100° F. by the use of large doses of quinine.

The man was then given 10-grain doses of sodium salicylate three times daily. The shoulder was blistered by an application of cantharidal collodion. In four days the pain had disappeared, but the patient discovered that the power of abducting the arm was completely lost.

Examination showed complete paralysis of the deltoid, with some tenderness over its lower half.

There was no stiffness, or crepitus, or pain in the joint.

The patient was put on potassium iodide in 10-grain doses. There has been no improvement in the condition at the end of a week.

There was no history of traumatism.

Could the condition be due to gonorrheal infection, or was it merely a coincidence?

Respectfully, J. W. WILLIAMS, A.M., M.D.

PATERSON, N. J.

STEEL IN THE IRIS.

To the Editor of THE MEDICAL NEWS,

SIR: I have noticed of late reported in THE MEDICAL NEWS several cases in which particles of steel have remained imbedded in the iris for many years without causing trouble.

Perhaps the following case may be of interest in this connection. It occurred in the service of Prof. George E. Frothingham in the University of Michigan.

H. S. A., sixty-six years old, of Bay City, Michigan, entered the hospital October 16, 1885, with senile cataract in both eyes, the left mature, the right immature. In the iris of the left eye, in the outer inferior quadrant, near the pupillary border, was embedded a small, bright piece of steel, projecting forward into the aqueous chamber. The steel had penetrated the eye forty-eight years previously. On October 21st the lens of the left eye was extracted, local anesthesia being induced by means of a 4 per cent. solution of cocaine, the particle of steel not being disturbed. The subsequent progress of the case was uneventful. The patient left the hospital after the lapse of the usual time, with an excellent degree of vision, taking the piece of steel with him.

I have taken this case from my clinical notes while clerk of the ophthalmic clinic under Prof. Frothingham.

Respectfully, E. B. PATTERSON, M.D.

MICHIGAMME, MICH.

A CASE OF HEMORRHAGIC VARICELLA.

To the Editor of THE MEDICAL NEWS,

SIR: The following case seems of sufficient interest and rarity to merit publication. I am indebted to Dr. A. Trau, in whose practice the case occurred, for permission to record it:

W. S., a male infant, six months old, on July 25th, after slight indisposition, presented pearly vesicles on the face and body. Two or three other children in the family had just recovered from typical attacks of varicella. Dr. Trau saw the case and diagnosticated varicella. On July 28th there were numerous vesicles, especially about the face and head, which contained blood. Some of the clear vesicles were distinctly umbilicated. Crusts and scabs formed after rupture of the blood-containing vesicles, so that the child presented an unsightly and rather alarming appearance. There was considerable cerebral depression, at one time almost passing to coma. The highest temperature was 103° F. On August 3d the temperature was normal; the child was restless, and cried a good deal. There were no lesions upon the visible mucous membranes. More or less pitting is now perceptible as the result of the eruption, and for some days crops of pustules and furuncles appeared, especially about the head.

C. A. HAMANN, M.D.,
Surgeon Out-patient Department, German Hospital, Philadelphia.

EARLY PREGNANCY.

To the Editor of THE MEDICAL NEWS,

SIR: Thinking the following case of sufficient interest to warrant publication, I forward you the accompanying report:

On the morning of August 16th I was called in haste to attend a case in confinement five miles in the country. Upon reaching the bedside I found that I was a "little too late." The mother had been delivered of her child. The youthfulness of the mother attracting my attention, I learned, upon inquiry, that she was not yet fourteen years old. The history of the case revealed the fact that she was one of the number who had been unfortunate. The girl claims to have been assailed by some unknown person, and, in a helpless, unconscious condition, was ravished. As no information could be obtained by which the perpetrator of the deed could be identified, the child was born out of wedlock.

The young mother began to menstruate when she was about twelve and a half years old; three months afterward she became pregnant, and at full term was delivered as related. The child was well nourished, and normally developed except for its feet, both of which were deformed, being of the talipes varus variety, and of marked severity.

Respectfully yours,

L. PITNER WARRINGTON, M.D.

CHARITON, IA.

FOR SNAKE-BITE.

To the Editor of THE MEDICAL NEWS,

SIR: I have successfully employed the following mode of treatment in a number of cases of snake-bite. To the bitten place, by means of cloths, I apply the following every hour or two, or oftener if it seems necessary:

℞.—Acid. salicylic . . . . . ʒij.
Aquæ ammoniæ . . . . . ʒij.—M.

At the same time whiskey and ammonia are given freely. As soon as the line of demarcation is formed an incision is made through the skin between the dead and living parts. The parts are then washed with corrosive sublimate, 1 : 1000, three or four times a day, and the bite is dressed with 5 per cent. carbolized oil, which is kept constantly applied. Respectfully,

B. F. GOODLETT.

TRAVELLERS' REST, S. C.

STATE BOARD EXAMINATIONS.

To the Editor of THE MEDICAL NEWS,

SIR: At a meeting of the State Board of Medical Examiners of Washington, one of the Board, a "physiomedic," so-called, was the propounder of a list of questions on "Preventive Medicine." Among other things it was asked "What should be done if a person has eaten *anthrax meat?*" This was a puzzler to most of the applicants; but one man from the Middle States, of long experience and wonderful erudition, proved equal to the emergency, and gratified the examining member with this answer: "Swallow a turkey-buzzard, for he won't stop at anything."

Yours truly, C. W. S.

SEATTLE

NEWS ITEMS.

A. v. Hippel, of Königsberg, has succeeded v. Graefe in the occupancy of the Chair of Ophthalmology at Halle.

Bandl, a well-known gynecologist and obstetrician, died recently at Vienna.

Rokitansky, of Vienna, has been called to Graz to assume the duties of the Chair of Obstetrics.

John S. Billings, M.D.—At the recent tercentenary of the University of Dublin, the honorary degree of Doctor of Medicine was conferred, among others, upon Dr. John S. Billings, U. S. A.

An Emergency Fund for the Prevention of Infectious Disease.—The Philadelphia County Medical Society at its last meeting adopted the following preamble and resolutions:

WHEREAS, the appearance of Asiatic cholera in the commercial cities of Western Europe and the quarantine station of New York has excited great popular alarm, and whereas, recent events in connection with the quarantine at New York have illustrated how readily a conflict of authority might arise or popular fear be so preyed upon or legal form so employed as to hamper and nullify the efforts of those charged with the prevention of epidemics;

Resolved, That the Philadelphia County Medical Society expresses its belief that the introduction of Asiatic cholera and similar diseases into this country is strictly preventable, and that the only present danger of such occurrence lies in the inadequacy of the means at present provided for meeting such emergencies, and the possible legal or popular opposition to the efforts of those charged with administering our present quarantine regulations.

Resolved, That we urge the importance of placing at the disposal of the health authorities of the State a sufficient emergency fund for the thorough isolation and disinfection of infected persons or goods that may find entrance to the State.

S. D. Gross Monument Fund.—Dr. John B. Roberts, Treasurer of the American Surgical Association, acknowledges the reception of the following contributions to the Gross Monument Fund. Contributions are hereafter to be sent to the Gross Monument Committee, of which Dr. J. R. Weist, of Richmond, Ind., is Chairman.

Dr. Douglass Graham, Boston	$5 00
Dr. Solen Marks, Milwaukee	20 00
Dr. L. C. Lane, San Francisco	50 00
Dr. A. H. Plummer, San Francisco	20 00
Dr. C. Cushing, San Francisco	20 00
Dr. O. O. Burgess, San Francisco	20 00
Dr. Joseph O. Hirshfelder, San Francisco	20 00
Dr L. L. Dorr, San Francisco	20 00
Dr. James Simpson, San Francisco	20 00
Dr. Henry Palmer, Janesville, Wis.	10 00
Dr. Gibson, Janesville, Wis.	5 00
Dr. Mills, Janesville, Wis.	5 00
Dr. Pember, Janesville, Wis.	5 00
Dr. Whiting, Janesville, Wis	5 00
Dr. Robert McLean, San Francisco	50 00
Dr. Francis L. Town, U. S. A.	20 00
Dr. Basil Norris, U. S. A.	20 00
Dr. G. L. Simmons, Sacramento	1 00
Dr. C. L. Simmons, Sacramento	1 00
Dr. N. R. Cluness, Sacramento	1 00
Dr. N. R. Cluness, Jr., Sacramento	1 00
Dr. C. Nichols, Sacramento	1 00
Dr. A. E. Brune, Sacramento	1 00
Dr. M. H. Woolsey, Sacramento	1 00
Dr. G. A. White, Sacramento	1 00
Dr. C. E. Fowler, Sacramento	1 00
Dr. W. H. Baldwin, Sacramento	1 00
Dr. M. Gardner, Sacramento	1 00
Dr. T. W. Huntingdon, Sacramento	1 00

The American Dermatological Association, at its annual meeting held in New London, Conn., on September 13, 14, and 15, 1892, elected the following officers: For President, Dr. George Henry Fox, of New York; for Vice-President, Dr. H. W. Stelwagon, of Philadelphia; for Secretary and Treasurer, Dr. Geo. Thos. Jackson, of New York; for Member-at-large of the Council, Dr. J. C. White, of Boston.. The meeting adjourned to meet in Milwaukee on the first Tuesday of September in 1893.

CORRECTIONS.

In the second formula, in the first column of page 294 of THE NEWS of September 10, 1892, the quantity of alcohol should have read q. s. ad f℥v.

The figures 0.3 in the fourth line from the bottom of the second column of page 299 of THE NEWS of September 10th, should have read 0.003.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, OCTOBER 1, 1892. NO. 14.

ORIGINAL ARTICLES.

CORROSIVE SUBLIMATE AS A GERMICIDE.[1]

BY CHARLES T. McCLINTOCK, A.M.

WHEN I began the experiments on which this paper is based, when in fact I had demonstrated the chief facts herein, I did not know that Koch's work on the germicidal value of sublimate had ever been seriously questioned. The papers by Geppert[2] and Abbott[3] are the only noteworthy ones bearing on this subject that I have been able to find.

Geppert saw the danger of carrying over with the germs that had been in the disinfecting solution enough of the disinfectant to act as an antiseptic. One of his methods of experimenting was to have small sterilized dishes, in one of which was placed the germ and disinfectant, in a second a very weak solution of ammonium sulphide. After leaving the germ in dish No. 1 a given time, a portion was transferred to dish No. 2, and from this his tubes and plates were immediately made. Judging from my own experiments, he would have obtained different results had he left the germ for a longer time in the ammonium sulphide solution. True, he accomplished what he was aiming at, viz., the precipitation of the free sublimate, but it takes some little time for ammonium or hydrogen sulphide to dissolve or precipitate the mercury from the albuminate that is formed when sublimate comes in contact with albuminous bodies. This one can readily demonstrate by placing in a solution of ammonium sulphide a bit of cloth, or filter-paper, or still better egg-albumin, or a mass of anthrax-threads that have lain in sublimate for some time.

Abbott also recognized the danger of carrying over enough of the sublimate to act as an antiseptic. He avoided this by high dilutions. Both of these observers, however, failed to take into account the formation by the mercury of a compound with the material of the germ itself, and while their results show that sublimate does not deserve the place as a germicide that Koch gave it, they still leave it with a germicidal power far beyond its due. Geppert found that oftentimes he could kill animals with a germ treated with sublimate, when he could get no growth from the germ on any of his media. He could offer no satisfactory explanation of these cases. The experiments herein recorded will, I think, explain the cause of these discrepancies in his results.

Geppert's experiments show that the blood has the power of freeing the germ from this compound of sublimate (the proof of the existence of this compound I shall present further on), and his numerous and trustworthy experiments along this line have made it unnecessary for me to go over the ground again. From my experiments I should expect to find a marked difference in this power between the blood, the subcutaneous tissues, and serous cavities, and, indeed, Geppert and Gruber[1] found this difference. By introducing into the blood spore-threads that had been in the sublimate, Koch would have obtained results far different to those he obtained by introducing the spores beneath the skin of animals. The amount of sublimate carried along in combination with the thread and the contained germs would be enough to form an antiseptic pool for some distance around the thread, and while, nominally, the germ had been in contact with the germicide only a few minutes, in reality, before the slowly moving subcutaneous lymph could dissolve the compound of mercury, the germs would have been under its influence for hours or even days.

Abbott also would have found his results different had he used liquid instead of solid media. Bouillon, gelatin, agar, etc., have the power of slowly dissolving this organic compound of mercury, but, transfer a germ encapsulated by this mercurial compound to gelatin, and while the adjacent gelatin will slowly dissolve or decompose the compound, the result will be, if ever complete, that the germ is left lying in a pocket or pool of sublimate solution, which, if in sufficient quantity, may completely hinder its growth, although the germ is in nowise incapable of growing. Athough recognizing its advantages, I was loath to use bouillon in my experiments, because the argument of contamination is so applicable, and from the further fact that one surviving organism would give the same result as if hundreds had survived.

[1] A thesis submitted for the degree of Ph.D. in Michigan University.

[2] Geppert: "Zur Lehre von den Antisepticis," Berliner. klin. Wochenschr., 1889.

[3] Abbott: "Corrosive Sublimate as a Disinfectant against the Staphylococcus Pyogenes Aureus," Johns Hopkins Hospital Bulletin, April, 1891.

[1] Gruber: "Ueber die Methoden der Prüfung von Desinfektions-mitteln," Centralbl. f. Bacteriologie und Parasitenkunde, Bd. xi, Nos. 3 and 4.

The solutions of sublimate used in these experiments were made with chemical accuracy and were frequently renewed. They were kept in a dark closet in well-closed, glass-stoppered bottles. At no time were the solutions more than two weeks old. The salt used in most of the experiments was one made by Merck, but, in order to be safe in my conclusions, another preparation was obtained from a different source, and solutions made from this. Afterward a portion of the salt was recrystallized several times, and this in turn used. In these experiments I have for the most part employed very resistant germs, as the bacillus subtilis and the staphylococcus pyogenes aureus. Both of these are germs that withstand great extremes of temperature, are very resistant to desiccation and possibly to chemical agents.

The staphylococcus aureus was used because it is the germ against which our efforts at destruction are most often aimed. The bacillus subtilis was chosen as being a very resistant spore-former. In contrast with these, I have made a few experiments on germs that do not have any great power of resistance, such as the germ of swine-plague, Eberth's germ of typhoid fever, which it will be remembered, is speedily destroyed at a temperature of 60° C., and one of Dr. Vaughan's list of typhoid germs, the bacillus venenosus.

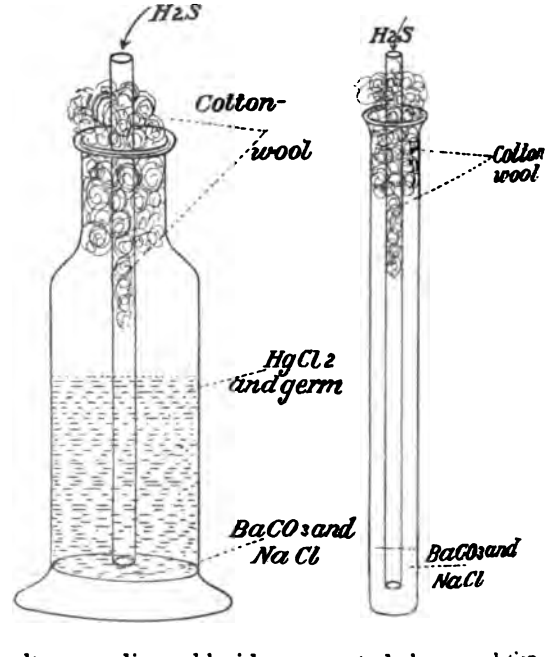
While it will be noticed that the highly resistant germs withstand the influence of the sublimate for many hours, it is also to be noticed that even those with but feeble powers of resistance, as the bacillus of Eberth and the bacillus venenosus, withstand its action for a comparatively long time.

As the anthrax-spore has been generally used as the test-organism in disinfection-experiments I began some work with it. The culture in the laboratory having been grown on artificial media for at least five years, had completely lost the power of spore-formation. Through the kindness of Dr. Abbott, of the Johns Hopkins University, I obtained a spore-forming culture of anthrax. In growing this I found that but few spores were formed, and I then attempted to restore its powers by growing it in the orthodox manner; and after passing it through animals, growing it in various kinds of dilute bouillon, and on potatoes for many generations, I at last obtained potato-cultures with a fairly abundant spore-formation. On testing these for the thermal death-point I was surprised to find that they succumbed to a temperature of 92° C. maintained for one minute. On this account I abandoned the bacillus of anthrax in my further experiments.

The variation in the power of resistance among anthrax-spores has long been known, but I suspect that it has not received the attention that it deserves from many experimenters with germicides. The fact that spores are formed, or that the culture is virulent for susceptible animals, does not mean that the experimenter has a resistant organism, as it is well known that even the sporeless anthrax-bacillus readily kills susceptible animals.

In my earlier experiments I used hydrogen sulphide to remove the sublimate, but I soon noticed variations in my results that I could not account for, these being more marked when I used 1:100 and saturated solutions of the sublimate. On reflection I was convinced that these variations might be due to the hydrochloric acid formed by the action of the hydrogen sulphide on the sublimate. A calculation of the amount of the acid formed showed that this inference was correct. After this I used sodium carbonate, sodium hydrate, or barium carbonate to neutralize the acid formed. In most of the experiments barium carbonate was used, it being insoluble in water and in general better than the alkaline salts, as the mercury is imperfectly precipitated except in neutral solutions. If the germ is to be used for inoculating animals the barium salt should not be used, as the barium chloride formed is itself highly poisonous. Noticing that the neutral

FIG. 1. FIG. 2.



salts, as sodium chloride, prevented the coagulation of albumins by sublimate, and that these, when so coagulated, were dissolved on the addition of the salt, I used sodium chloride in most of my experiments, in addition to the barium carbonate, in removing the sublimate.

In the first series of experiments recorded, the apparatus used (Fig. 1) was as follows: Into a bottle

with a capacity of about thirty c.c. was fitted a cotton-wool plug; passing through this plug and reaching to the bottom of the bottle was a glass tube, also plugged for several inches of its length with cotton-wool. In the bottle was placed a small quantity of barium carbonate, in the earlier experiments without, in the later with, sodium chloride. The apparatus was sterilized in the steam sterilizer. In the bottle was then placed a measured quantity of the sublimate solution and afterward a measured quantity of the germ-containing liquid. After a given time, the glass tube was connected with a Kipp's generator, and through it hydrogen sulphide passed. Then, with the platinum loop, three drops were removed from the bottle and placed in gelatin, which was then plated.

For convenience in handling and examining without contamination, Petri dishes were used exclusively. As the colonies were at times very slow in developing, the Petri plates were kept in moist chambers to prevent drying. In most of my experiments no attempt was made to determine how many of the germs were killed and how many survived. Such experiments have some scientific value, but are likely to be misleading. The fact that a control-plate shows one thousand colonies, while that exposed to the action of a disinfectant shows but fifty, gives but little insight into the question of disinfection. The few experiments that I have made in that direction seem to show that the majority of germs in any given culture are easily killed, and in looking over the experiments of others I find that this is confirmed.

EXPERIMENTS.

1891.

Nov. 12. One c.c. of bouillon-culture of the staphylococcus aureus, twenty-four hours old; twenty c.c. of sublimate, 1 : 200; time, thirty minutes; two Petri plates made.

Nov. 16. Many colonies.

Nov. 14. One c.c. of the same culture as the preceding; twenty c.c. sublimate, 1 : 200; time, sixty minutes.

Nov. 22. Many colonies.

Nov. 15. One c.c. of bouillon-culture of the bacillus subtilis, eleven days old; twenty c.c. of a saturated sublimate solution; time, thirty minutes.

Nov. 20. Few colonies.

Nov. 15. Two c.c. of subtilis culture; twenty c.c. of saturated sublimate solution; time, two hours.

Nov. 25. No colonies. (Very acid after H_2S, *i. e.*, not enough $BaCO_3$.)

Nov. 18. One c.c. of a culture of aureus; three c.c. of water; ten c.c. of sublimate, 1 : 200; time, sixty minutes.

Nov. 23. Many colonies.

Nov. 18. One c.c. of a culture of aureus; twenty c.c. of a saturated sublimate solution; time, forty minutes.

Nov. 26. No colonies.

Nov. 26. One c.c. of a culture of aureus; twenty c.c. of sublimate, 1 : 1000; time, fifty minutes.

Nov. 30. Many colonies.

Nov. 30. One c.c. of a culture of subtilis; twenty c.c. of sublimate, 1 : 200; time, sixty minutes.

Dec. 5. Two Petri plates were made; one had three colonies, the other had eight.

Nov. 30. One c.c. of subtilis culture; twenty c.c. of sublimate, 1 : 1000; time, twenty-three and one-half hours.

Dec. 5. Many colonies developed.

Nov. 28. One c.c. of aureus culture; twenty c.c. of sublimate, 1 : 200; time, seventy minutes.

Dec. 5. Many colonies developed.

Nov. 28. One c.c. of aureus culture; twenty c.c. of sublimate, 1 : 1000; time, eighteen and one-half hours.

Dec. 5. No colonies developed.

Dec. 10. Two colonies developed.

Nov. 25. One c.c. of aureus culture; twenty c.c. of sublimate, 1 : 200; time, sixty minutes.

Dec. 3. Hundreds of colonies developed.

Dec. 1. One c.c. of aureus culture; twenty c.c. of sublimate, 1 : 100; time, sixty minutes.

Dec. 7. Few colonies developed.

Dec. 5. One c.c. of subtilis culture; twenty c.c. of a saturated sublimate solution; time, seventy minutes. Two Petri plates were made.

Dec. 11. One dish had four, the other had ten colonies. (In this experiment sodium carbonate was used instead of barium carbonate.)

Dec. 5. A control-experiment was made to see if contamination was possible; no germ was employed, but all of the details of the other experiments were carried out.

Dec. 11. No colonies developed.

Dec. 8. One c.c. of swine-plague culture; twenty c.c. of sublimate, 1 : 1000; time, sixty minutes.

Dec. 12. Hundreds of colonies developed.

Dec. 8. One c.c. of swine-plague culture; twenty c.c. of sublimate, 1 : 200; time, sixty minutes.

Dec. 12. Many colonies developed.

Dec. 12. One c.c. of aureus culture; twenty c.c. of sublimate, 1 : 1000; time, eighteen and one-half hours. Two plates were made.

Dec. 14. On one four, on the other six colonies appeared.

Dec. 13. One c.c. of subtilis culture, filtered; twenty c.c. of a saturated sublimate solution; time, eighty-five minutes. Two Petri plates of agar were made and kept in an incubator.

Dec. 17. Many colonies developed.

Dec. 13. Control. No germ was employed, but all else was carried out as in the other experiments. There was no development.

1892.

Jan. 13. A fresh culture of staphylococcus aureus was obtained, and this was used in subsequent experiments.

One c.c. of aureus culture; twenty c.c. of sublimate, 1 : 1000; time, sixty minutes.

Jan. 17. Innumerable colonies had formed.

In order to show that it was not a mere question of free sublimate preventing the germ from growing, there were taken from the flask used in the last experiment, after the germ had remained in the sublimate sixty minutes and before the addition of H_2S, etc., three loopfuls, which were placed in a tube of bouillon. From this bouillon-

tube one loopful was removed to a tube of gelatin, and in turn one from this to a second gelatin tube; both tubes were plated.

Jan. 27. No development had taken place in either plate.

From this and other experiments I became convinced that the treatment with H_2S and sodium chloride did more than remove the free sublimate in the solution—that is to say, it seemed to me that here were proofs that the sublimate formed a chemical combination with the investing membrane or coat of the germ, and that this was not removed by the process of dilution or by washing. Schaefer[1] and Braatz[2] have pointed out that this is true for silk threads and catgut.

To test this conclusion I made the following experiments. Some egg-albumin was placed in sublimate, 1 : 1000, for thirty minutes; this was then placed on a filter and repeatedly washed with distilled water; the washing being continued long after the filtrate failed to give a precipitate with ammonium sulphide. To show that the free sublimate was removed, twenty drops were run into each of two bouillon-tubes containing about eight c.c. each. One of these tubes was inoculated with the bacillus subtilis, the other with the staphylococcus aureus; both gave luxuriant growths. Then a small quantity of the washed albumin, estimated at one-fifth of a c.c., was placed in a bouillon-tube and this was inoculated with the bacillus subtilis; this tube also gave an abundant growth. In still another tube was placed a quantity of the albumin, estimated at one c.c. This tube was placed in the incubator for sixteen hours and then inoculated with the staphylococcus aureus. No development followed.

A mass of anthrax-threads, grown in bouillon, was placed in 1 : 100 sublimate for thirty minutes; it was then placed on a filter and repeatedly washed. To show that free sublimate was removed, five c.c. of the filtrate were added to eight c.c. of bouillon and the tube inoculated with the staphylococcus aureus; it gave an abundant growth. A small quantity of the washed threads was placed in a bouillon-tube and a larger quantity in a second tube. Both tubes were inoculated with the staphylococcus aureus; the one containing the small quantity grew; the other remained sterile. The remaining portion of the threads was placed in a beaker with distilled water and ammonium sulphide added; the threads became intensely black from the precipitation of the contained mercury. Several days later the experiments were repeated with the egg-albumin and anthrax-threads, with similar results. Still other experiments were made with filter-paper, cotton cloth, and silk threads, all giving the same results.

The experiments show that the sublimate unites with the egg-albumin, with the cellulose of the cotton cloth and filter-paper, with the silk, and with some portion of the germ, as in anthrax, and that this is a chemical union, but that such fluids as bouillon can set free the contained sublimate, and this, if in sufficient quantity, will prevent any growth in the bouillon. In order to test this further, egg-albumin was treated with sublimate, and, having been freed from the free sublimate by continued washing, it was washed with 0.6 per cent. solution of sodium chloride. One, five, and ten drops of this filtrate respectively were added to tubes of bouillon and then inoculated with the staphylococcus aureus. The one with ten drops gave no growth, although inoculated a second time. Experiments with anthrax-threads gave the same results, *i. e.*, after treatment with sublimate, then washing, then being placed in one hundred and fifty c.c. of a 0.6 per cent. solution of sodium chloride, then sixteen hours in the incubator; five c.c. of this liquid placed in a tube of bouillon prevented the growth of the bacillus subtilis.

Again, a silk thread was placed in sublimate, 1 : 1000, for an hour; it was then throughly washed and cut into two pieces, one of which was placed in distilled water, the other in five c.c. of blood; both were placed in the incubator for one hour. Both were washed and then placed in a solution of ammonium sulphide. The portion that had been in water became intensely black, while that from the blood was not discolored.

In order to see if a 0.6 per cent. solution of sodium chloride could act as does blood in removing the sublimate from germs, one c.c. was removed from the flask that in the experiment of January 13th had for sixty minutes contained the germ and sublimate, 1 : 1000, before adding hydrogen sulphide, etc., and placed in one hundred and eighty c.c. of sterilized 0.6 per cent. solution of sodium chloride; after standing for one hour plates were made.

January 27th, no development had taken place.

1892.

Jan. 19. One c.c. aureus; twenty c.c. of sublimate, 1 : 100; time, thirty minutes.

Jan. 23. Innumerable colonies had developed.

From the flask used in this experiment before the addition of hydrogen sulphide, etc., one-tenth c.c. was removed and placed in one hundred c.c. of sterilized salt solution; from this one plate was made after twenty minutes and one after sixteen hours.

Jan. 26. There was no development.

Feb. 24. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000; time, sixty minutes.

Feb. 27. Many colonies had formed.

[1] Schaefer: Berliner klin. Wochenschr., 1890.

[2] Braatz: Centralbl. f. Bacteriol. und Parasitenkunde, Bd. viii, No. 1.

Before adding hydrogen sulphide, etc., dilutions were made from the foregoing, so that the plates contained less than 1 : 50,000,000 sublimate.

Mar. 4. Four colonies had formed.

Feb. 24. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 100; time, sixty minutes.

Feb. 27. One hundred and eighty colonies had formed.

After the plate was made, the apparatus containing the germ, sodium carbonate, hydrogen sulphide, etc., was placed in the incubator for twelve hours and then a second plate made.

Feb. 27. Thousands of colonies had formed.

As it is improbable that the germ would multiply, at least to any considerable extent, in this combination of salts, both on account of lack of food-material and for the further reason that the hydrogen sulphide, and possibly the salts, would have a retarding influence on its multiplication, the conclusion seems warranted that the difference in the number of colonies on plates No. 1 and No. 2 was due to the fact that the incubator temperature and the prolonged action of the hydrogen sulphide and the salts had liberated many more germs from the sublimate than in the case of the first plate.

From the second flask of Feb. 24, before the addition of hydrogen sulphide, etc., dilution-tubes were made, the plates containing less than 1 : 10,000,000 sublimate.

Mar. 1. No development had taken place.

Control-plates were made at the same time as the other plates of Feb. 24, *i. e.*, one c.c. of aureus cultures; fifty c.c. of water.

Feb. 27. Innumerable colonies had formed.

In the succeeding experiments a modification of the apparatus previously in use was made. The germ was placed in a sterilized Erlenmeyer flask plugged with cotton-wool, and into this was placed the required amount of sublimate solution. From time to time one c.c. was removed with a sterilized pipette from this flask and placed in a test-tube containing a small quantity of barium carbonate and sodium chloride. This test-tube (Fig. 2) contained a plug of cotton, through which passed a small tube also plugged. This small tube passed to the bottom of the test-tube. The test-tube and contents were, of course, thoroughly sterilized in the steam sterilizer before being used. After adding the one c.c. of germ and sublimate, a stream of hydrogen sulphide was passed through the small tube; then three drops of the liquid were removed with the platinum loop and placed in gelatin, which was then plated.

The cultures of staphylococcus aureus used from this time on were treated as recommended by Geppert,[1] *i. e.*, they were grown in bouillon, in a flask containing sand, the continued shaking of which tended to hinder the formation of clumps. The culture was afterward filtered not less than twice through several inches of glass-wool contained in an Allihin tube. By this means all of the larger clumps were removed, but the microscope showed that there still remained small aggregations of the germ, although invisible to the eye.

Feb. 24. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000; time, sixty minutes.

Mar. 1. Nine colonies had formed. (Sodium hydrate was employed instead of barium carbonate.)

Before the addition of sodium hydrate or hydrogen sulphide a portion was taken from the foregoing and diluted until the plate contained less than 1 : 50,000,000 sublimate.

Mar. 1. Three colonies had formed.

Feb. 24. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 100; time, sixty minutes.

Feb. 27. One hundred and eighty colonies had formed.

Before adding H_2S, etc., one c.c. was taken from the foregoing and diluted until the plate contained less than 1 : 10,000,000 sublimate.

Mar. 1. No development had taken place.

Control from the foregoing culture of aureus, one c.c. in fifty c.c. of water.

Feb. 27. Innumerable colonies had formed.

In the following experiments a culture of staphylococcus aureus, twenty days old, was used. It was grown with sand and filtered as usual.

Mar. 1. One c.c. of aureus culture; fifty c. c. of sublimate, 1 : 100.
Time thirty minutes.

Mar. 4. Innumerable colonies had formed.
Dilution plates made as usual.

Mar. 4. No development had taken place.
Time sixty minutes.

Mar. 4. Numerous colonies had formed.
Dilution plates after sixty minutes.

Mar. 4. No development had taken place.
Time ninety minutes.

Mar. 4. Many colonies had formed.
Dilution plates after ninety minutes.

Mar. 4. No development had taken place.
Time two hours.

Mar. 4. Innumerable colonies had formed.
Dilution plates after two hours.

Mar. 4. No development had taken place.

One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000; time, thirty minutes. Innumerable colonies formed.
Dilution plates (March 4). No development took place.

Mar. 1. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000; time, sixty minutes.

Mar. 4. Innumerable colonies had formed.
Dilution plates (March 4). No development took place.

Mar. 1. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000; time, ninety minutes.

Mar. 4. Many colonies had formed.
Dilution plates (March 4). No development took place.

Mar. 1. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000; time, two hours.

Mar. 5. Many colonies had developed.
Dilution plates (March 5). No development took place.

[1] Geppert: "Zur Lehre von den Antisepticis," Berliner klin. Wochenschr., 1889.

In making the dilutions, one loop of the germ and sublimate was placed in a tube of bouillon containing eight c.c.; from this, one loop was removed and placed in a tube of gelatin. If the loop held one one-thousandth of a cubic centimeter, which was approximately its capacity, the sublimate in the plates from the 1 : 100 would be 1 : 6,400,000,000; in those made from the 1 : 1000, the plates would contain 1 : 64,000,000,000.

Mar. 9. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000; time, thirteen hours.
Mar. 13. Thirteen colonies had formed.

It occurred to me that if sodium chloride prevented the coagulation of albumin by sublimate, a solution of the double chloride of mercury and sodium or a mixture of the two salts should prove a better germicide than sublimate alone. In order to test this, several experiments were made, but the results failed to confirm my hypothesis.

Mar. 14. One c.c. of aureus culture; forty c.c. of sublimate, 1 : 100; twenty c.c. of a 10 per cent. solution of sodium chloride.
Mar. 16. After thirty minutes, innumerable colonies had formed; after forty-five minutes, innumerable colonies had formed; after sixty minutes, innumerable colonies had formed.
At the same time and from the same culture of aureus, one c.c. was added to sixty c.c. of sublimate, 1 : 100.
Mar. 16. After thirty minutes, innumerable colonies had formed; after forty-five minutes, innumerable colonies had formed; after sixty minutes, innumerable colonies had formed; after twelve and one half hours, ninety-eight colonies had formed; after fifteen hours, there was no development.

In the case of the fifteen-hour plate, ammonium sulphide alone was used, instead of the usual method. In order to test the effect of having more albuminous material present, a companion set of experiments to the foregoing was made with the same culture of the staphylococcus aureus, but grown in gelatin. Both cultures were grown in the incubator for five days. The gelatin was, of course, liquefied by the germ.

Mar. 14. One c.c. of aureus culture (in gelatin); forty c.c. of sublimate, 1 : 100; twenty c.c. of a 10 per cent. solution of sodium chloride.
After twelve and one-half hours (March 19), very many colonies had developed; after fifteen hours (March 19), two hundred colonies had formed; after thirty-six hours, (March 19), no development had taken place.

Mar. 18. One c.c. of bouillon-culture of the bacillus subtilis; fifty c.c. of sublimate, 1 : 1000.
After four and one-half hours (March 22), very many colonies had developed; after eighteen hours (March 22), forty colonies had formed; after twenty-four hours (March 22), forty-two colonies had formed; after forty-two hours (March 22), no development had taken place.

A second set of experiments comparing the culture grown in the ordinary way, *i. e.*, in bouillon with sand and then filtered, with that grown in gelatin was made. Both cultures were eight days old.

Mar. 18. One c.c. of aureus culture (in gelatin); fifty c.c. of a saturated solution of sublimate.
After sixty minutes (March 23), no development had taken place; (March 27), three colonies had formed; after four hours (March 27), no development had taken place; after eleven hours (March 27), no development had taken place.

One c.c. of a bouillon culture of the staphylococcus aureus; fifty c.c. of a saturated solution of sublimate.
After sixty minutes (March 25), no development had taken place; (March 27), four colonies had formed; after four hours (March 25), no development had taken place; after eleven hours (March 25), no development had taken place.

One c.c. of aureus culture (in gelatin); fifty c.c. of sublimate, 1 : 100.
After sixty minutes (March 23), no development had taken place; (March 24), very many colonies had formed; after four hours (March 23), no development had taken place; (March 24), many colonies had formed; after eleven hours (March 23), no development had taken place; (March 26), fourteen colonies had formed; (March 27), twenty-one colonies had formed.

One c.c. of bouillon culture of the staphylococcus aureus; fifty c.c. of sublimate, 1 : 100.
After sixty minutes (March 23), innumerable colonies had formed; after four hours (March 23), many colonies had formed; (March 24), innumerable colonies had formed; after eleven hours (March 23), no development had taken place; (March 27), no development had taken place.

One c.c. of aureus culture (in gelatin); fifty c.c. of sublimate, 1 : 1000.
After sixty minutes (March 23), innumerable colonies had formed; after four hours (March 25), innumerable colonies had formed; after eleven hours (March 25), no development had taken place; (March 26), one hundred and fifty colonies had formed.

One c.c. of aureus culture (in bouillon); fifty c.c. sublimate, 1 : 1000.
After sixty minutes (March 25), very many colonies had formed; after four hours (March 25), no development had taken place; (March 26), there were too many colonies to count; after eleven hours (March 24), no development had taken place; (March 26), many colonies had formed.

(To be concluded.)

The Royal Academy of Medicine of Rome offers the Riberi Prize of 20,000 francs ($4000) for a report of the most notable discovery in anatomy, physiology, pathology, or pharmacology, made in the quinquennial period from 1892 to 1896. The report must be presented in Italian, French, or Latin, and be submitted before December 31, 1896.

HYDRO-NAPHTHOL IN THE PROPHYLAXIS AND TREATMENT OF CHOLERA: REPORT OF LABORATORY EXPERIMENTS.

BY D. D. STEWART, M.D.,
CLINICAL LECTURER ON MEDICINE IN THE JEFFERSON MEDICAL COLLEGE.

IN a preliminary note as to the prophylaxis and treatment of cholera, published in THE MEDICAL NEWS of September 17th, I suggested the use of hydro-naphthol both as a preventive and as a remedy for the developed disease, it having occurred to me, from several years' experience with this drug in intestinal affections of bacterial origin, that it would probably fulfil the indications of antiseptic and germicide far better than salol. It will be remembered that salol has lately been rendered somewhat popular as a cholera remedy through the writings of Löwenthal, who discovered that it possessed toxic power over comma-spirilla, under the influence of pancreatic juice, which dissociated it into its components, salicylic acid and phenol. It occurred to me that the latter, which exists in salol in the proportion of 36 per cent., was in all probability the active agent, as it is, of course, a far more efficient germicide than the former, and on comma-spirilla has an especially lethal effect, as these perish in a one-half per cent. solution, as was shown by Koch.

As I pointed out, the experiments of Löwenthal, though interesting and demonstrating the effect of nascent phenol on comma-spirilla in the test-tube, are unfortunately, of little practical utility, for the reason that it is not in the duodenum but in the lower part of the ileum that the contagium finds lodgment and exerts its specific effect. Salol undergoes decomposition in the upper part of the jejunum, and is there promptly converted into soluble, *absorbable*, and very questionable antiseptic salts, sodium salicylate and carbolate, little undecomposed salol reaching the lower segment of the bowel, unless the intestinal contents are abnormally acid or the drug is ingested in doses the effect of which would be very injurious.

A remedy to be directed with effect against the contagium of cholera should be a more or less ideal intestinal antiseptic; it should be but slightly soluble and decomposable, yet a germicide in aqueous solution, and both non-toxic and non-irritant in doses sufficient to produce a germicidal action. Experiments with naphthalin as an intestinal antiseptic, clinical and laboratory, have been disappointing. In recent years it has almost ceased to be used, hydro-naphthol or beta-naphthol[1] taking its place.

It occurred to me that hydro-naphthol would perhaps fulfil the desired indications. It had been found of signal service in intestinal affections, especially in those of bacterial origin. It is related to phenol, being, like it, a benzol derivative; hence, presumably, cholera-spirilla might also be vulnerable to it. It is but slightly soluble in aqueous solutions, is non-irritant and non-poisonous, and does not readily undergo decomposition; it would, therefore, be carried unchanged to the affected part of the bowel, even in moderate doses, without absorption occurring. To determine its actual value as an antiseptic and germicide in cholera, I asked Dr. Ghriskey, of the Laboratory of Hygiene, University of Pennsylvania, to undertake some experiments as to its influence on pure cultures of comma-spirilla. The following is a brief account of the result; the details of the experiments are to be subsequently published, embodied in the annual report of the Hygienic Laboratory work:

THE LABORATORY OF HYGIENE,
UNIVERSITY OF PENNSYLVANIA.
September 23, 1892.

DR. DAVID D. STEWART,

DEAR DOCTOR: The laboratory experiments to determine whether hydro-naphthol possesses any antiseptic or germicidal action against the Asiatic cholera-spirillum of Koch, which were undertaken at your request, have been completed, and we herewith send you a report of the results obtained. The pure cultures of the organism used in our experiments were derived from one originally secured from the Bureau of Animal Industry, Washington, D. C. In its morphology and behavior in nutritive culture-media it was shown to be identical with the comma-spirillum of Koch, though we cannot vouch for its virulence.

We found in a series of experiments, repeated with constant results, that in solutions of a strength of 1 part hydro-naphthol and 7000 parts nutritive culture-medium, the drug proved to be distinctly antiseptic. It was also demonstrated that with a mixture of equal parts of a saturated aqueous solution of hydro-naphthol and a bouillon-culture of this organism, the drug was germi-

[1] Beta-naphthol and hydro-naphthol, which in their powdered condition are very similar in physical appearance, are regarded by some chemists as identical bodies. This, however, would appear not to be the case, there being a number of points of distinction between them. Hydro-naphthol is said to possess a different molecular arrangement from beta-naphthol, from which it is derived by the substitution of a molecule of hydroxyl (OH) for an atom of H. While naphthalin ($C_{10}H_8$) is formed by the union of two benzol groups saturated with hydrogen, beta-naphthol ($C_{10}H_7(OH)$) may be stated to equal naphthalin in which a molecule of hydroxyl has been substituted for an atom of H. Hydro-naphthol would represent naphthalin in which two molecules of hydroxyl are substituted for two atoms of H. Beta-naphthol, which is probably by no means as toxic and unsafe for internal administration as Seabury and Johnson assert, will perhaps also be found of value in cholera. Dr. Ghriskey is now investigating its action on comma-spirilla for me. It is, like hydro-naphthol, unquestionably a valuable intestinal antiseptic. M. Bouchard's experiments with it (see *N. Y. Medical Record*, Dec. 12, 1887, p. 797) indicate that it is only toxic in enormous doses, being less so than naphthalin, the much weaker antiseptic. Bouchard found that a lethal dose for a man of 130 pounds avoir., was about 250 grams (equivalent to a half-pound). Toxic effects (albuminuria, spasmodic muscular contractions, salivation, and coma) were produced only when naphthol was ingested in doses of about 26 grams.

cidal within five minutes. In this series the results were invariably the same.

Two samples of hydro-naphthol were employed by us: the one which you sent us, another sold by Seabury & Johnson, N. Y. The solubility, determined by the usual method, showed some variance in the two preparations; in general, we found the solubility to be in the proportion of from 1 part in 1000 to 1 part in 900 of cold distilled water.

In so far as the experiments of the *antiseptic* value of hydro-naphthol are concerned, they are corroborative of results obtained by Abbott and published by Fowler, of Brooklyn, N. Y., in 1885. These experiments were made with the bacillus anthracis and the bacillus subtilis. Both are known to be far more resistant to antiseptic and germicidal agents than the comma-spirillum, which is an organism classed among those least resistant. The results of the *disinfective* action of hydro-naphthol do not coincide with the results obtained by Abbott. This may in part be explained by the nature of the organisms with which the work was done, but more probably was due to the improvements in the technique of the experiments as practised to-day over the methods used at the date of Abbott's experiments.

Very truly yours,

ALBERT A. GHRISKEY, M.D.,
Assistant in Bacteriology.

The foregoing report indicates that I was correct in my surmises regarding the probable value of hydro-naphthol, both as a prophylactic agent and as a remedy for developed cholera. It would appear, indeed, that we very likely have in it a medicament of extraordinary value, for it has thus been actually demonstrated beyond question that a proportion as high as one to seven thousand has an undoubted inhibiting effect on the development of the comma-spirillum, and that a proportion of about one to two thousand (equal parts aqueous solution and culture medium) exerted a prompt germicidal action.[1] As one part to seven thousand equals about a grain to the pint, or to the avoirdupois pound, and as the contents of the small intestine, when the latter in its entire length is thoroughly distended, cannot amount to more than nine or ten pints, it would follow that, under any condition, but ten grains of hydro-naphthol, if in solution, would be required to render the entire small intestine antiseptic against the comma-spirillum, preventing its development, while about forty grains, under similar conditions, would disinfect the intestine, promptly killing any spirilla present. Despite these calculations, it is, of course, somewhat difficult to accurately formulate the exact dose necessary to create immunity against cholera, or that sufficient to exert a bactericidal effect in cases of the developed disease. Fortunately we have in hydro-naphthol one that is non-toxic in doses probably much larger than would be sufficient for the latter effect. In cases of simple diarrhea, in dysentery, and in enteric fever, I have frequently administered a half-dram in the twenty-four hours, continuing this often for weeks, totally without effect other than beneficial, and it is quite certain that doses much larger than these may be similarly used. The slight inhibition of gastric digestion that hydro-naphthol produces is readily obviated by the administration of the latter in keratin-coated pills, which are soluble in the duodenum, or if the drug is ingested in powder, capsule, wafer, or emulsion, by taking it between meals. It is without effect on duodenal digestion.

As a prophylactic against cholera when, from exposure, the disease seems imminent, hydro-naphthol should be taken in doses of from eight to ten grains four times daily for three or four days, and, subsequently, in from five- to eight-grain doses with the same frequency. This amount will probably at once exert an antiseptic effect, and at the expiration of twenty-four hours be germicidal. In early cholaeraic diarrhea it should be used in quantities of ten grains hourly, or even half-hourly, until from one to two drams have been taken. Here it may be, and, deed, by choice, should be, combined with an opiate. An overwhelming testimony exists as to the extraordinary benefit likely to accrue from a prompt resort to opium in the stage of preliminary diarrhea, Sir George Johnson's most dangerous theoretic views to the contrary notwithstanding. The extended experience of Sir Thomas Watson, Fergus, of Glasgow; Aitkin, Macpherson, Twining, Parkes, our own Flint, Sr., and many others who have passed through several epidemics, leaves no doubt as to the great utility of opium. Nevertheless, as pointed out in my former paper, treatment by opium is only symptomatic, for this drug can neither destroy the comma-bacillus nor retard its development. Opium apparently acts in early choleraic diarrhea by checking the bowel-irritation caused by the spirillum or its leukomaïne. If, conjointly, a second remedy can be administered that will have a lethal effect on the spirillum the ideal treatment of cholera, at least in its early stage, has been found.

2620 NORTH FIFTH STREET, PHILADELPHIA.

[1] Time did not permit carrying the experiments farther, to ascertain if a less percentage of hydro-naphthol is germicidal. This is now being done. The result will be published subsequently with the results of a study of beta-naphthol.

Gunshot Wound of the Gall-bladder; Cystorrhaphy.—KEHR (*Centralblatt f. Chirurgie*, No. 31, p. 645) has reported the case of a man, thirty years old, who received a perforating wound of the abdomen, inflicted by a revolver bullet. When the abdomen was opened, it was found that the gall-bladder had been lacerated, and the abdominal cavity contained blood and bile. The opening in the bladder was closed by deep and superficial sutures, and the fluid in the abdomen removed by means of sponges. The subsequent course of the case was practically uneventful. Twenty-four hours after the operation, transitory jaundice appeared. Four weeks later, the patient was dismissed, well.

STOMATITIS DUE TO THE IRRITATION OF EPITHELIAL PEARLS IN THE MOUTHS OF NEWBORN CHILDREN.[1]

BY HENRY J. GARRIGUES, M.D.,
OF NEW YORK.

SCARCELY had I gone on duty last spring in the Maternity Hospital before we had a little epidemic of sore mouths among the children, which presented peculiar features that awakened our interest and made us examine every child in the wards very attentively.

The first case to which my attention was called presented a superficial ulcer, covered with a yellow film and bounded by a red line, occupying nearly the whole soft palate, and extending symmetrically on both sides of the median line. As the child had no fever, and, upon the whole, appeared to enjoy excellent health, a diphtheritic infection, which at the same time attacked the eyes of several babies, could be excluded. A microscopic examination of the yellow mass covering the ulcer showed only pus-corpuscles and the common pyogenic micrococci.

The history of the case was that on the second day after the child's birth a small, white spot, like a millet-seed, was seen in the median line at the junction of the soft and hard palate, which spread symmetrically, until, in the course of three days, it covered the soft palate.

It was evidently some local infection. I had it swabbed with water acidulated with acetic acid and painted with a solution of borax in glycerin—a dram of the former to an ounce of the latter. The sore healed from the periphery to the center, and when the child was dismissed, on the twenty-sixth day, its mouth was clear.

In another case, immediately after birth, a white spot, pea-sized, was noticed at the junction of the right tonsil and palate, which, on account of its position and size, I suppose was only the white or yellowish spot corresponding to the neighborhood of the hamular process of the sphenoid, which is likely to become the seat of an ulceration called "Bednar's aphthæ." The mucous membrane is here only half as thick as in the other parts of the mouth. The pterygo-maxillary ligament extends from the hamular process to the spine in which the internal oblique line ends inside of the inferior dental foramen on the inside of the lower jaw, and stretches this part of the mucous membrane when the mouth is opened. As the hamular process forms a prominence, the back of the tongue is pressed with particular force against it when the child nurses. All of these peculiarities explain why this spot is more vulnerable than most other parts of the mouth.

On the fourth day a white streak was seen extending in the median line from the hard palate to the root of the uvula, and on the following day the original lateral spot became united with this median line, forming a triangular ulceration, taking in the left side of the soft palate and the palatal arches of the same side. It looked entirely like diphtheritic infiltration, but the temperature never rose beyond 99.4°, no glands were swollen, and the child certainly was not seriously ill.

On the seventh day a similar ulcer formed on the right side, corresponding to the original spot on the left. When the child left the hospital on the twenty-third day the mouth was nearly healed, clearing up from the periphery to the center.

I mention these two cases especially, because, in my opinion, they represent two different types—the first ulceration having originated in an epithelial pearl; the second, in the weak spot covering the hamular process of the sphenoid.

We examined in all fifty-two babies, and soon found that nearly all had one or more white nodules on the palate at their birth. The first twenty-seven of these children had their mouths washed out immediately after birth and after each nursing, with the velvety side of a piece of lint soaked in a saturated solution of boric acid. Of these, twelve had a more or less sore mouth, the ulceration always beginning at the epithelial pearls, with the exception of the one case of Bednar's aphthæ. In the last twenty-five cases we desisted from all washing out, so that nothing but the mother's nipple and her milk entered the mouth; and of these babies not a single one got a sore mouth.

The pearls were found in all but three of the fifty-two, and to these I may add five cases of my private practice, four of which had them, which makes a total of fifty-seven cases; fifty-three of which, or 93 per cent., had congenital epithelial pearls.

These epithelial pearls are small, white, globular tumors, varying in size from that of a pin-head to that of a millet-seed, situated in the raphe of the palate, preferably at the juncture of the hard and the soft palate. Sometimes there is only one; in other cases from two to five. The outer surface is almost cartilaginous, while the interior is filled with a softer mass. They are imbedded in the mucous membrane of the mouth, the larger reaching from the epithelium, in which they may even produce a depression, to the periosteum. Most have a covering of condensed subepithelial connective-tissue, which merges into the surrounding tissue without any distinct line of demarcation. Sometimes, instead of the round prominence, we find a white line extending as much as half an inch in the direction of the raphe.

Microscopic examination shows that the whole

[1] Read before the American Gynecological Society—Seventeenth Annual Meeting, held in Brooklyn, N. Y., Sept. 20, 1892.

mass is composed of epithelial cells like those of the mucous membrane of the mouth. The outer layers are the youngest, as appears from their polyhedral form and the presence of a nucleus; while those placed near the center are flat and have lost their nuclei, just as the case is with the superficial epidermal cells compared with those of the rete Malpighii.

Similar formations are sometimes found on the free edge of the alveolar process, especially near the posterior extremity.

Older authors have taken these formations for retention-cysts and called them *milium*, but Epstein,[1] who has made a thorough investigation of them from the time of their first appearance in the fetus, is probably right in rejecting all connection between them and glands. He has found them as early as the eighth week of fetal life, while the glands of the mouth do not begin to be developed before the fourth month. They are always situated in the median line, while the glands begin at some distance from it, leaving a strip of tissue free on either side of it. They are also often situated on a deeper level than the glandular layer. They are transient organs, which in healthy children disappear at the end of the second month. In badly nourished children, however, the process of involution takes more time. After the fifth month Epstein has not found them externally, but imbedded in the mucous membrane they may be found a whole year after the birth of the child.

According to the author named, these pearls are due to a kind of invagination of the epithelium, and the reason why they are found in just that particular place is that the palate is formed by two lateral projections, which gradually unite in the median line from the front backward.

As to their appearance on the alveolar process, Epstein refers this to a similar inclusion of epithelium taking place when the walls of the dental furrow grow together over the germs of the future teeth. He has, therefore, given them the name of *epithelial pearls*.

In our cases the pearls, if they did not give rise to stomatitis, had disappeared already within a week or two. Several nodules were seen to melt together, and then to clear up and gradually disappear. By following them day after day, we have also been able to see that new ones may appear after the birth of the child.

As to diagnosis, they are easily distinguished by their definite locality and their regular, round globular shape. Bednar's ulcer always develops laterally, and usually bilaterally on the place corresponding to the hamular process of the sphenoid. Sprue forms small, irregular, less elevated white spots, which are never congenital and are found in any part of the buccal membrane, without any symmetrical distribution.

In regard to treatment, we must remember that the epithelial pearls being physiologic formations, destined to a spontaneous disappearance; do not call for any treatment, and that all we have to do is not to injure them. If an energetic nurse takes them for sprue and rubs them off, mischief is likely to follow. In our case we stopped the time-honored washing out of the mouth of the children, and not one of those thus treated, or rather not treated, got stomatitis. If, however, a child has got liquor amnii, blood, or other extraneous matter into its mouth, I do not see any objection to washing it, either with plain water, which I use in private practice, or with a saturated solution of boric acid, which in some manner had found its way into the routine treatment in the Maternity Hospital, but the washing should be very superficial, and performed with a smooth, soft rag (an old fine pocket handkerchief answers admirably), great care being taken not to injure the epithelium anywhere.

If stomatitis has developed it should be treated as similar affections usually are. Our cases were swabbed with hydrogen dioxide, 1 part diluted with 1 or 2 parts of water; potassium chlorate, 1 part to 32 or 48 parts of water; saturated solution of boric acid; and, what proved best of all, water acidulated with a few drops of acetic acid, followed by painting with 1 part of borax dissolved in 8 parts of glycerin.

As I did not visit the hospital more than two or three times a week, I am indebted to the house-surgeon, Dr. T. R. Carter, for many details in the observation of the cases that form the basis of this communication.

[1] Alois Epstein: Zeitschrift für Heilkunde, vol. i, p. 59, Prag, 1880.

GYROSPASM OF THE HEAD IN INFANTS.

BY FREDERICK PETERSON, M.D.,
CHIEF OF CLINIC, NERVOUS DEPARTMENT, VANDERBILT CLINIC, COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

A PECULIAR rotary spasm of the head, and sometimes a nodding spasm, is met with in young children, but is a somewhat rare disorder. Henoch has described it in his book on *Diseases of Children*. Not long ago Dr. Haddon[1] gave the details of five or six cases that had come under his observation, with references to several others. I will first briefly relate five cases that I have seen: two at the Polyclinic, in conjunction with Dr. Sachs; two at the Vanderbilt Clinic, with Dr. Starr, and one in Buffalo, with Dr. Snow.

[1] Lancet, June 14, 21, 28, 1890.

CASE I.—E. T., a female child, eight months old, came to the Polyclinic, March 25, 1890. She was the second child. The labor had been normal. The child tumbled out of bed at the age of five months. One month later she began to have constant movements of the head from side to side. The child was bright-looking. There was at one time, according to the mother, a slight nystagmus, but none at my examination. Treatment was carried on for a month without much improvement, but the child subsequently recovered.

CASE II.—M. U., a male, nine months old, came to the Polyclinic, October 28, 1890. For five months he had had a rotary movement of the head. When the child was perfectly quiet, the head kept oscillating from right to left and from left to right at the rate of from eighty to one hundred oscillations per minute. The movement was, however, not constant; pauses of several minutes' duration occurred; and when the child's attention was attracted to some object the movement ceased as long as the mind was concentrated and interested. There was lateral nystagmus of the right eye alone, which also had the peculiarity of temporarily ceasing for minutes at a time. The patient had measles two months previously; there was no history of convulsions or of a fall. The head had presented in labor, which had been normal. The general health was good.

CASE III.—F. C., a female, nine months old, came to the Vanderbilt Clinic, May 14, 1888. The child was in good general health, although nursed by an anemic mother. Six months previously she had fallen out of bed, and very soon afterward began to have a movement of the head from side to side. When the child's attention was attracted, the rotation ceased, but otherwise it was continuous. There was convergent strabismus, but no nystagmus.

CASE IV.—J. C., a male eleven months old, came to the Vanderbilt Clinic in 1889. He was born healthy, of a primipara; the labor had been difficult. The child had spasms when a few days old. It was bright and healthy-looking. At the age of eight months the mother first noticed a continuous lateral rotation of the head. When occupied with any object, such as a watch or a key, the movement ceased. There was no nystagmus.

CASE V.—A. C., a male, nine months old, was seen with Dr. Snow, June 25, 1890. At the age of seven months he had had a fever, with convulsions and retraction of the neck, lasting nine days. Soon after this the mother remarked a rapid continuous motion of the head from side to side, which ceased during sleep and while nursing. There was no nystagmus.

All of these cases were treated with potassium bromide, in doses of from one and one-half to three grains, and all were more or less improved—in several to such a degree that the children were not brought again after a few weeks of medication.

These are the main points of my cases. There seemed to be little else the matter with the infants. I would call attention to the following features of cases thus far reported:

Age. Of the ten cases described by Hadden and myself, seven were under ten months of age and the other three under fifteen months. The disorder would, therefore, seem to be one of early infancy, though Henoch reports a case in a child three years old.

Character of the movement. In all of my cases the motion was distinctly and solely from right to left and left to right; in other words, a rotary spasm, or gyrospasm, as I think proper to call it. The title of Hadden's paper, however, refers to other forms of head-movement, "On Head-nodding and Head-jerking in Children, Commonly Associated with Nystagmus." Sometimes there was nodding simply, sometimes both nodding and lateral movements, and again only rotary spasm. Henoch says: "In many cases I have found the rotating movement by far the most marked, and the nodding very slight." I have noted cessation of the spasm during sleep, and, as recorded, whenever the attention of the child was drawn to any particular object, so as to interest it.

Association with nystagmus. In only one of my five cases did I observe nystagmus, and that was lateral and monocular. In another case the mother claimed to have seen it, but I could not corroborate this. In three of Hadden's cases, three of Henoch's, and one of Norrie's[1] there was monocular nystagmus, but, according to the first-named author, double nystagmus is more frequent. From my own experience I should not be inclined to look upon nystagmus as a condition usually associated with the gyrospasm and spasmus nutans of infancy, but as an occasional concomitant. When present, it may be monocular or binocular, and lateral, vertical, or rotary. It seems to occur at times in infants by itself, as a sole symptom, doubtless of a pathologic condition similar to that which underlies the gyrospasm.

Strabismus. In one of my cases there was convergent strabismus, and Henoch, Hadden, and Gee[2] each report a similar instance.

Exciting causes. Henoch looks upon dentition as a cause, and the age of early dentition at which the disorder usually appears would seem to favor his view. At the same time, my own cases would hardly support his idea, for in one it began at three months, in one at four, and in one at five, and in the two others at seven and eight months, respectively. Head-injury preceded the appearance of the spasm in three of Hadden's cases, and in two of my own a fall out of bed seemed to have occasioned the malady. Perhaps concussion of some kind may be found in most of the cases to be the determining factor—a concussion setting up in the centers of the spinal

[1] Centralb. f. prakt. Augenheilk., 1888, p. 229.

[2] St. Bartholomew's Hospital Reports, vol. xxii, p. 26.

accessory and at times in those of the oculo-motor nerves an arhythmic discharge. We know that in adults concussion of the brain, if severe, may quite suddenly give rise to a rapid, though temporary nystagmus.

Prognosis and treatment. The organic basis of the disease usually being of a slight nature, the prognosis may, as a rule, be considered very favorable. Treatment with potassium bromide, in doses of from one and one-half to three grains three times daily, will certainly ameliorate and generally cure these cases. Even without treatment, gyrospasm and the nodding form of movement are likely to disappear in a few months or years.

201 WEST FIFTY-FOURTH STREET

THE ENZYMES OF SOLUBLE FERMENTS OF THE HOG-CHOLERA GERM.[1]

BY E. A. DE SCHWEINITZ, Ph. D.,
BIOCHEMIC LABORATORY, BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

IN the *Archiv für Hygiene*, 1890, vol. x, pt. 1, p. 1, Fermi describes the detection and isolation of soluble ferments from the cultures of a number of different germs. Some of these germs belong to the class that produce gas (principally CO_2 and H) when grown in media containing glucose or glucose-forming substances, and as a rule the gas-producing germs when cultivated upon proper media have been found to be ferment-builders.

As has been shown by Smith and other investigators, the hog-cholera germ produces large quantities of gas when grown in peptonized beef-broth containing 2 per cent. of glucose. About one-fourth of this volume is hydrogen and three-fourths carbon dioxide, the remaining liquid containing acetic and succinic acids, as I have found by analysis.

To detect and isolate the soluble ferments of the hog-cholera germ, if any, several different culture-media have been tried, but the one that has given the most satisfactory results is sterilized milk. In plain peptonized beef-broth media but very small amounts of these ferments were produced, sometimes none.

Upon agar-agar the growth of the germ is rapid, and from the watery extract of the surface-growth a mixture of two ferments has been obtained that will convert starch into glucose and liquefy gelatin—in other words, ferments that act as diastase on the one hand and as trypsin on the other.

If now we take either skimmed or fresh milk, carefully sterilize it, and then inoculate it with the hog-cholera germ, after about three weeks the milk has become thin and watery in appearance, a curd-like coating has formed on the surface, and the reaction, if the growth has been normal, has become either neutral or alkaline. The germs may now be removed by filtering the milk through a carefully sterilized Pasteur tube, or they may be killed by heating the solution to 54° C. for several hours, or still better, by the addition of a saturated solution of thymol.

From the cultures sterilized in this way the addition of absolute alcohol throws down a voluminous precipitate consisting of albumose, a little peptone and soluble enzymes.

A purification of this precipitate and partial separation of enzymes from the accompanying albuminoid matter is attained by a re-solution in water and precipitation with basic calcic phosphate. The enzymes are carried down mechanically by this, and can be dissolved out by water and reprecipitated with alcohol. After repeated treatment of this sort a small quantity of white powder is finally obtained, which will liquefy gelatin, digest fibrin and albumin, and convert starch into glucose.

To separate the diastase-like ferment from the liquefying ferment, the mixed ferments were rubbed up with glycerin and filtered. The solution in glycerin contained the hydrating ferment, while the undissolved portion taken up again in water and precipitated by alcohol does not act as a hydrating agent, but as a digestive agent.

The trypsin-like ferment can also be precipitated by means of saturated salt-solution. This latter ferment seems to be formed in much smaller amount than the former.

The action of both of these ferments is destroyed above 55° C. They contain nitrogen, but when pure do not give the general albuminoid reactions.

In order to try and obtain these ferments in a purer form, and possibly larger quantity, an artificial culture-medium proposed by Fermi, in the *Archiv. für Hygiene*, vol. xiv, for use with other germs, was tried for the hog-cholera bacillus. This contained 1 per cent. ammonium phosphate, 0.1 per cent. acid potassium phosphate, 0.02 per cent. magnesium sulphate, and from 4 to 5 per. cent. glycerin. The hog-cholera germ grows vigorously in this liquid, and after from three to four weeks the cultures become alkaline in reaction. They give also the peculiar amine odor characteristic of the hog-cholera cultures. From these artificial sterilized cultures I have so far been unable to separate the diastase-like ferment, but a small amount of the tryptic ferment, showing that the ferment-production is dependent upon the medium.

As for the physiologic effects of these ferments, Fermi holds that in general the soluble ferments are without great physiologic importance in the process of disease.

The initial experiments that I have made upon

[1] Read before the Chemical Section of the American Association for the Advancement of Science, Rochester, August 17, 1892.

guinea-pigs show that, so far as this particular disease at least is concerned, the ferments are of great importance in the production of immunity.

Guinea-pigs about a pound in weight each have been injected with a sterile solution in water of these ferments, the amount taken varying from 0.003 gram up to from 0.02 to 0.05 gram. The injections below 0.01 gram were without ill-effect, beyond that there was a rise of temperature for several days. The injection of 0.05 gram was in several instances sufficient to kill the animals. The autopsies showed some injection of the bloodvessels of the intestines, but in other respects the animal was normal in condition.

A single injection of 0.04 gram of the ferments was sufficient to make the animals immune to an inoculation with the hog-cholera germ that was sufficient to cause the checks to die in ten days.

It is probable, therefore, that the soluble ferments exert in their way, at least in some diseases, a potent action in rendering the animal insusceptible to disease.

It is possible, too, that to the indirect action of these specific ferments we may trace the protective and curative influence of the blood-serum of immune animals.

CLINICAL MEMORANDA.

PEANUTS IN THE VERMIFORM APPENDIX; OPERATION; COMPLETE REMOVAL OF THE APPENDIX; RECOVERY.

BY M. ROSENHEIMER, M.D.,
OF MILWAUKEE, WIS.

EMMA J., an American, twenty-three years old, was first seen on May 5, 1892, at 5 P.M. She had had a slight chill and pain in the abdomen since early in the morning. She had been feeling well the day before, when she came from her home in the country to friends in the city. She had always been constipated, but had had two slight bowel-movements in the forenoon. On inquiry, I learned that she had eaten some cherries the evening before, but she was positive that she had not swallowed any of the stones. It was only at a later questioning that the fact was elicited that she had eaten peanuts two days previously. She felt nauseated, and had vomited once or twice. I prescribed a mixture containing the fluid extract of opium, but without relief. The pain gradually became localized to the right iliac region, and increased in intensity. The temperature was 100.5°, the pulse 96. I made a diagnosis of appendicitis, and administered half a grain of morphine hypodermatically, and ordered warm local applications.

I saw the girl again on the following day at 8 A.M. She had rested several hours during the night, but the pain gradually returned, and was again controlled by the administration of quarter-grain doses of morphine. The lower limbs were flexed on the abdomen, and there was great tenderness over the cecum. There was considerable nausea and frequent retching. The temperature was 99.5°, the pulse 96. The warm applications were continued, as well as morphine administered at intervals. At 5 P.M. of this day there was much pain, in spite of the anodyne, and the abdomen was tympanitic, excepting in the region of the cecum, where there was flatness. The right groin was at this time also a little more elevated than the left groin. Nausea became extreme, and the slightest attempt to move or to raise the head was attended with retching. The temperature was 102°, the pulse 108. The bowels had not been moved since the morning of the preceding day; nor had the patient taken any nourishment. Thirst was marked, but only small quantities of lemonade were retained. The family had been advised of the girl's illness, and some members having arrived, a consultation was proposed.

At 9 P.M. I saw her again, in consultation with Dr. W. H. Earles, who concurred in my diagnosis. The patient was having great pain, with almost constant nausea and retching. The temperature was 101°, the pulse 108.

Operation was advised, but it was decided to wait until morning.

The girl rested some during the night, after full doses of anodyne, but the pain returned. It was now decided to operate, and the conditions being explained to the patient, an intelligent young woman, her consent was obtained. A full dose of morphine was administered, and she was transported to Trinity Hospital. The operation was performed at 11.30 A.M., Drs. Earles and Hoyer assisting. The patient took chloroform badly, and ether was substituted. She ceased breathing several times, and became deeply cyanosed, so that it became necessary to resort to artificial respiration. While under the anesthetic, a circumscribed induration in the right iliac region could be plainly mapped out. An incision was made parallel with, and about an inch and a half internal to, Poupart's ligament, extending from the level of the anterior superior iliac spine downward for three or four inches, and the seat of the trouble exposed. On opening the peritoneum, some brownish, slightly fecal-smelling fluid escaped. After some search, the appendix was found. It contained two large bodies, and was gangrenous for an inch of its length, having perforated at three points. After the appendix had been removed, it was found to contain two good-sized peanuts. The abdominal cavity was irrigated with sterilized water, the wound plugged with sterilized iodoform-gauze, and an antiseptic dressing applied. The patient's condition at the close of the operation, which occupied about forty minutes, was critical, but improved after the administration of several hypodermatic injections of brandy. She was placed in bed, and heat applied to the extremities. Morphine was given hypodermatically, in sufficient quantity to keep her comfortable.

The temperature for two days varied between 100° and 102°; the pulse ranged at about 132, and was feeble. The wound was dressed after twenty-four hours, quite a quantity of fecal-smelling fluid having saturated the dressings. On the fourth day the temperature and pulse became permanently normal. Absolutely nothing was given for the first twenty-four hours, although the thirst was distressing. After this, lemonade in dram-doses was administered, and, later, milk and lime-water. She improved rapidly, and made a complete recovery. At the date of writing, five weeks after the operation, the

girl had left the hospital, and returned to her home in the country, a distance of fifty miles.

My supposition is that the peanuts were shrivelled and small when swallowed, and found their way into the appendix, where, absorbing moisture, they swelled, and, giving rise to strangulation, caused the subsequent trouble.

803 THIRD ST.

GASTROSTOMY IN CARCINOMA OF THE CARDIAC ORIFICE.

BY EMORY LANPHEAR, M.D., PH.D.,
OF KANSAS CITY, MO.;
SURGEON TO UNIVERSITY DISPENSARY, ETC.

IN discussing the subject of "Carcinoma of the Cardiac Orifice of the Stomach," Lauenstein[1] does not approve of the establishment of a fistula whenever obstruction of the cardiac orifice, dependent upon carcinoma, is nearly or quite complete. The chief objection to operation for the formation of a fistula is that when the disease is so far advanced as to necessitate feeding by other means than by the mouth it becomes impossible to approximate the wall of the stomach to the abdominal parietes—the first step in a gastrostomy; and Lauenstein reports two cases in which the attempt was unsuccessful. I have a similar case to report—one in which, upon opening the abdomen, the carcinomatous stomach was so much shortened and so closely adherent to its original position, because of the attachment of the cardiac tumor, that it was impossible to bring any portion of the anterior wall of the stomach in apposition with the thoracic or abdominal wall.

Mr. B., a patient of Dr. C. F. Wainwright, about fifty years old, for fifteen months had presented a clear clinical history of carcinoma of the esophageal extremity of the stomach. For three months there had been great difficulty in getting even liquid food into the stomach, and for three weeks the patient could not swallow any food at all. He was nourished by enemata, but he rapidly emaciated; the abdomen was scaphoid; a small tumor could be detected in the region of the cardiac orifice of the stomach; the esophageal tube was arrested at a distance of thirty-eight centimeters from the superior dental arch.

With Dr. Wainwright assisting and Dr. J. H. Thompson giving ether, laparotomy was performed June 20, 1892. A large nodular mass was found surrounding the cardiac extremity, while the upper third of the stomach was likewise involved in the growth. The stomach was shortened to less than half the normal size and bound by adhesions to the surrounding structures. Every attempt to draw the anterior wall of the stomach into apposition with the abdominal incision caused sudden and complete cessation of respiration. After several attempts, each followed by artificial respiration, the abdomen was closed by catgut sutures and dressed with bichloride gauze held in place by plaster. The operation occupied twenty-eight minutes. The patient was put to bed, without much shock. On June 21st, there were no visible effects of the operation, the condition being the same as before. Rectal feeding was continued. On June 29th, the patient had completely recovered from the operation; the wound had healed by primary union. Absolutely no pain was felt at any time after the operation. The patient continued to sink, however, and died July 6th. The autopsy disclosed carcinoma of the lower extremity of the esophagus and of the cardiac extremity of the stomach. The adhesions were strong and extensive. The stomach was much reduced in size, but apparently in such a condition that some food might have been digested if gastrostomy had been successful.

The want of success in such cases as this, it seems to me, should not discourage operators from trying to establish fistulæ for carcinoma affecting the cardiac orifice, for experience has demonstrated that often some benefit may be derived; but care must be exercised in the proper performance of the operation, for, as Lauenstein observes, the fistula must be so made as to admit of the ready introduction of food and at the same time retain the gastric juice, as otherwise the patient will be worried by attempts at feeding and the edges of the wound will become excoriated by the outpouring of the stomach's contents.

Even when it is possible to complete the gastrostomy the operation may be a total failure, as some stomachs will be found to have disturbed chemical conditions—as the absence of hydrochloric acid; this, however, is quite rare, and cannot be regarded as a legitimate objection to an operation that holds a certain degree of hope of greatly prolonging life and is attended with but trifling danger—practically none at all in skilled hands.

Carcinoma of the stomach is not a rare disease; if diagnosticated early it is susceptible of removal, if it affect the pylorus or lesser curvature; if it involve only the cardia, early gastrostomy, before contractions and adhesions have taken place, will greatly prolong life. The relative situation, according to Welch,[1] in a total of 1300 cases analyzed, was: Pyloric region, 791; lesser curvature, 148; cardia, 104; posterior wall, 68; whole of stomach, 61; multiple tumors, 45; greater curvature, 34; anterior wall, 30; fundus, 19. Thus, a large proportion of cases, if recognized early, are within reach of the surgeon's knife for extirpation; if diagnosticated later, for gastro-jejunostomy when the pylorus is obstructed, for gastrostomy when the occlusion occurs at the cardiac orifice. I cannot too strongly urge the necessity for early diagnosis and the calling of a surgeon before the case has progressed so far as to render surgical interference useless.

[1] Centralblatt für Chirurgie, vol. xviii, No. 27, p. 513.

A CASE OF TRAUMATIC PERITONITIS COMPLICATED BY PNEUMONIA AND VARICELLA.

BY JOHN C. GORSUCH, M.A., M.D.,
OF YOUNGSTOWN, OHIO.

ON the evening of May 20, 1892, I was called to see a boy, five years old, and apparently of a robust and vigorous constitution. He had been riding on a large four-wheeled road-scraper which the men were employing working the roads. Accidentally, the little fellow lost his balance and fell under the wheels, the hinder and larger one of which passed over his abdomen, permitting the weight of the entire rear portion of the ponderous machine, and in addition, that of one or two of the operators, to bear down upon him.

On thorough examination I could discover no fracture

[1] System of Medicine, vol. ii. Philadelphia, 1886.

or comminution of bone, of either the ribs or vertebræ. Palpation over the abdomen gave evidences of marked internal injury, with considerable pain and tenderness, but tympany was absent. The temperature was 102° F., the pulse 120.

The parents were instructed in the application of the turpentine stupe, and directed to allow it to remain upon the abdomen until there was considerable burning and redness of the skin. This was to be followed by large hot flaxseed poultices, changed every half-hour. Following the opium plan of treatment, gtt. v of the tincture were ordered every two hours, except during sleep.

The prognosis of such injuries being exceedingly grave, the parents were given timely warning of the usual outcome of similar cases.

On arriving the next morning, I found the temperature 103° F. and rising; the abdomen was becoming tympanitic, but pain and tenderness were controlled by the opium. The little patient showed great fortitude, stating that he did not feel much pain and had slept quite well throughout the greater part of the night. A diet of milk and soft-boiled eggs was ordered and the previous treatment was continued.

Two days afterward Dr. J. E. Woodbridge, of Youngstown, saw the patient in consultation with me, and little change was noticed in the symptoms. The persistence in the use of opium had produced a marked contraction of the pupils, and upon the suggestion of Dr. Woodbridge, five drops were ordered every three instead of every two hours, as previously.

The patient was not seen again for three days, when there was considerable increase in the tympanites; pain was severe, the patient assuming the peculiar attitude characteristic of peritonitis, which now evidently involved the entire lower portion of the abdomen. The lessened amount of opium only partially controlled the symptoms.

At this juncture, owing to the lack of proper precaution on the part of the parents, the patient contracted a bronchitis of the smaller tubes, which soon reached the lungs, and the symptoms of catarrhal pneumonia appeared. Temperature and pulse, both of which up to this time were indicative of improvement, now, owing to the supervention of the inflammatory process in the lungs, displaying decided exacerbations.

While the treatment of the peritonitis was continued unchanged, the following was prescribed for the pneumonia:

℞.—Syr. ipecac. . . . . f℥ss.
Tinct. aconit. rad. . . . gtt. xxxij.
Syr. tolutani . . . . f℥ij.
Aquæ . . . q. s. ad f℥iv. M.

Sig.—A teaspoonful every two hours at first, then every three hours.

In addition, counter-irritation of the chest with sinapisms was practised and the body was wrapped up in hot flannels. Inhalations of steam, oil of eucalyptus (½ oz.) and water (a quart), were used for ten minutes three or four times a day. This procedure was successful in relieving the dyspnea. The coughing, which was quite frequent, aggravated the abdominal trouble, as the patient was unable to lie still or restrain the movements of the abdomen during the paroxysms. The pneumonia was not of a severe type, but was sufficient to aggravate the primary abdominal inflammation.

Quite contrary to my expectation, the history of the patient hereafter was one of steady and rapid recovery. The tympany and pain subsided, and the temperature gradually fell until it reached normal.

The final complication, varicella, coming on at this time, was more of a clinical curiosity than any serious drawback to recovery, and the question arose in my mind whether this surface-irritation affecting the skin did not, by vicarious action, alleviate the internal abdominal and pulmonary inflammations.

Owing to the constant use of opium, the patient was excessively constipated, hard fecal accumulations being easily felt through the abdominal walls. Cathartics were given and produced a large evacuation of firm scybalous masses. After this, rapid convalescence followed, and in a little over two weeks from the date of the injury the patient had entirely recovered—a termination that, if not remarkable, was at least wholly unexpected.

GASTRO-ENTEROSTOMY FOR CARCINOMA OF THE PYLORUS.

BY C. E. RUTH, M.D.,
OF MUSCATINE, IOWA.

ON July 8, 1891, I saw J. S., fifty-eight years of age, a gardener and farmer, whom I found emaciated and weak. He had always been well, except that for a number of years he had been compelled to exercise considerable care in his diet; certain articles of diet would cause considerable discomfort. Two months previously to my seeing him, while engaged in severe labor in the field, he was suddenly seized with pain in the epigastrium, accompanied with nausea and vomiting of a large amount of dark fluid, mixed with mucus Subsequently, he was able to take but very little nourishment, and for three weeks he had been able to retain only a small amount of water. The bowels were obstinately constipated. The vomited matters were always dark, and sometimes amounted to two quarts at a time. Making the stomach as full and as empty as I could without irrigation with the stomach-tube, because of the patient's refusal, I found the viscus greatly dilated and displaced downward, in part occupying the left iliac fossa. The pylorus was displaced downward about three inches, and through the attenuated abdominal walls I could detect apparent thickening and hardening of the pyloric extremity of the stomach.

My diagnosis was pyloric stenosis, due to carcinomatous deposits. The man was only able to sit up; and his pulse was 120 per minute and weak. I explained the serious nature of his trouble and the possibility of benefit from an operation, though the case was to all appearances almost hopeless. He readily consented to have an operation performed.

I directed a course of rectal alimentation, and returned two days later to perform the operation. I found that the injections had not been given. His pulse was weak and 150 per minute. I performed a gastro-enterostomy, using the Senn bone-plates. No especial difficulty was encountered, save that of keeping the patient alive. The diagnosis was fully verified; the pylorus was found the

seat of a small carcinoma, just sufficiently large to close the orifice. The growth had not infiltrated any of the surrounding tissues or organs. It would have been a most beautiful case for resection, if resection of the pylorus is ever indicated, which I very much doubt. Had gastro-enterostomy been performed while the patient still possessed sufficient strength, he might probably have lived eighteen months or two years. He survived the operation about twelve hours, suffering no pain, and not vomiting. The stomach was thoroughly irrigated before beginning the operation, and the incision was made in the linea alba. The anastomosis was made between the stomach and highest possible point of the jejunum.

CASE OF DISLOCATION AT THE ELBOW-JOINT, WITH RUPTURE OF THE MUSCLES AND LIGAMENTS; SPEEDY RECOVERY.

BY FRANCIS D. MERCHANT, M.D.,
OF BATOPILAS, MEXICO.

THE case herewith reported is rather unique, both as to the lesion itself and as to the speedy recovery, taking into consideration the gravity of the injury.

On the morning of May 10, 1892, I was called to see Esmerigildo Gonzalez, thirteen years old. About two hours previously he had, while on his way to school, climbed a guamúchil tree for fruit. Losing his hold, he had fallen about twenty feet, striking upon his left arm. Upon visiting him at the hovel that served as home, I found his arm wrapped in a dirty rag, the removal of which disclosed an upward and backward dislocation of both radius and ulna, a wound in the cutaneous structures in front of the joint, through which protruded for a distance of about two and a half inches the lower extremity of the humerus, including both of the condyles. The wound had apparently been caused by the transmission of the force of the blow through the osseous structures. The anterior, internal lateral and external lateral ligaments were ruptured, as also were the biceps and brachialis anticus muscles close to their attachments. It was not possible to detect any fracture. There was also a simple dislocation at the radio-ulnar carpal articulation.

Administering chloroform, "saddle-bag" antisepsis was resorted to, and the reduction at the elbow was effected in the following manner: The thumb of the left hand of the operator was placed against the lower extremity of the humerus, the fingers of the same hand being used to steady that bone, while the forearm was extended with the other hand and the humerus pushed upward and backward, both movements being effected at the same time. In this way the reduction was very speedily effected. The wound was dressed antiseptically. The reduction of the dislocation at the wrist was next effected and the arm was placed in the semi-flexed position, no splints being used on account of the extreme heat.

There was a little swelling of the ruptured muscles, but no inflammation of the joint and no appreciable rise of temperature. The wound was dressed daily for five days as a precautionary measure; then every third day with a solution of mercuric chloride and mercuric chloride gauze. There was no suppuration whatever. In twenty days the wound was healed, and soon after, all of the movements of the joint, with the exception of extreme flexion, were restored.

MEDICAL PROGRESS.

Protective Inoculations against Cholera.—HANKIN (*Brit. Medical Journal*, No. 1654, p. 569) gives an account of his experiences in submitting to inoculation for the purpose of securing protection against cholera, with a description of the method employed by Haffkine in the production of the vaccine. A virulent culture of cholera-bacilli is obtained by passing the organisms successively through a series of guinea-pigs. This virus is fatal to guinea-pigs when administered in the ordinary way and also when injected deeply into the muscles. Introduced beneath the skin, however, it does not kill, but gives rise to localized edema and necrosis, the resulting wound finally healing by granulation. An animal thus treated is immune to inoculation with cholera in any way. To obviate the necrosis that occurs, it is necessary to protect the animal by previous treatment with a virus that has been attenuated by cultivation in a slow current of air. Such a virus is, however, still capable of killing guinea-pigs if injected into the peritoneum in quantities a little larger than are necessary to attain the same result with the ordinary virus. If a dose of this attenuated virus (say one-eighth of a 24-hour-old agar-culture) is introduced beneath the skin of a guinea-pig, extensive edema develops, followed by a hard nodule that persists for a considerable time. If a week later the animal is inoculated with a similar quantity of the strengthened virus, edema develops, less decided than at first, while necrosis fails to appear. Tested a few days later, the animal will be found to be immune to cholera, however the inoculation may be made. The immunity thus conferred has been found to be undiminished a couple of months after treatment. Rabbits and pigeons have been rendered immune by the same process. A like result has been obtained in seven persons that have submitted to the treatment. In the human being, the injections give rise to local pain and swelling, malaise, elevation of temperature, and a tendency to constipation. It has been found possible to vaccinate guinea-pigs by means of cultures previously sterilized by heat. Under these circumstances the local reaction appears to be less decided than when the inoculation is made with living cultures; but the immunity produced does not seem to be of such a permanent character as that produced by the living microbe. Cultures in agar seem preferable to cultures in bouillon for inoculation, as the former contain less of the soluble poisons.

Total Extirpation of a Carcinomatous Uterus in the Sixth Month of Pregnancy.—STOCKER (*Centralbl. f. Gynäkol.*, 1892, No. 32, p. 632) has reported the case of a woman, thirty-six years old, who had eight children, the last some three and a half years previously. The labors had all been uneventful. The woman again became pregnant, but soon hemorrhage and offensive discharge set in. Textural changes in the cervix uteri became evident. Finally, the existence of carcinoma became indubitable, and it was decided to remove the entire uterus. The operation was performed in about the sixth month

of pregnancy. The body of the uterus was removed through an opening in the abdomen; the cervix through the vagina. The fetus died during the operation. Little blood was lost, and the further course of the case was uneventful. The patient was dismissed from the hospital on the twenty-eighth day.

Subcutaneous Suture of Fractured Patella.—AITKEN (*British Medical Journal*, No. 1647, p. 177) has devised a hollow drill for the subcutaneous suture of fractured patellæ. The patient is anæsthetized and the knee is flexed by an assistant until the patella becomes prominent. The instrument, armed with a stout silver wire, is introduced from below, and the patella is slowly and carefully pierced, the point of the instrument being brought out above. The drill is now removed, while the wire remains. The instrument is again introduced, and passed from the lower to the upper opening beneath the skin and superficially to the patella. The instrument is now armed with the projecting upper extremity of the suture and is withdrawn. The two extremities of the suture, projecting from the lower opening, are drawn tightly and tied and the knot is allowed to sink beneath the skin.

Lead-poisoning from a Retained Bullet.—KÜSTER (*Archiv f. klin. Chirurgie*, Bd. xliii, H. 3 u. 4) has reported the case of a man, who, seventeen and a half years after having been wounded at the knee by a bullet that entered the head of the tibia, but failed to make its exit, presented symptoms of chronic lead-poisoning: anemia, colic, anorexia, a blue line at the margin of the gums, and slight tremor of the hands; the urine contained lead but no albumin. The primary wound was opened, and numerous plates and small fragments of lead were found in the periosteum and bone. The bone was found softened in a situation opposite the point at which the ball had entered. The symptoms persisted for a short time after the operation, but soon disappeared.—*Münchener med. Wochenschr.*, No. 35, p. 628.

The Influence of Couveuse and Gavage upon the Mortality of the Newborn.—Since the introduction of couveuse and gavage at the Paris Maternité, the mortality among infants born prematurely has been considerably reduced, as the following figures amply demonstrate:

Duration of Gestation.	Mortality. Formerly.	Now.
6 months . .	100 per cent.	84 per cent.
6½ " . .	78.5 "	63.4 "
7 " . .	61 "	50.2 "
7½ " . .	46 "	23 "
8 " . .	22 "	11.2 "
8½ " . .	12 "	4 "

—*La Méd. Mod.*, 1891, No. 3.

Arthropathy in Syringomyelia.—NISSEN (*Beiläge zum Centralbl. f. Chirurgie*, No. 32, p. 47) has reported two cases of syringomyelia in which, in addition to the usual derangement of sensibility and other trophic changes, the left shoulder-joint was distended with fluid, while the head of the humerus, the acetabulum, and the other structures entering into the formation of the articulation had undergone changes partly destructive, partly hyperplastic. The volitional mobility of the joints was impaired, but passive mobility was preserved. Although in the one case the deformity had been preceded by traumatism, it is thought that in both cases the arthropathy bore a direct relation to the affection of the nervous system.

A Case of Pulmonary Obstruction, with Bradycardia.—SENDLER (*Centralb. f. klin. Med.*, No. 31, p. 642) has reported the case of a woman, thirty-five years old, who for a year and a half complained of weakness and attacks of syncope. There was general pallor of the skin and mucous membranes. The area of cardiac percussion-dulness was much increased. The impulse was scarcely palpable. The heart beat forty times in the minute. The radial pulse was feeble, but isochronous. Over the whole precordia a sawing murmur could be heard with the systole, but most distinctly in the aortic and pulmonary areas. It was learned that the patient had for some time presented symptoms of disease of the heart, and that she had taken digitalis, though in what doses and for what length of time could not be ascertained. The woman died after she had been under observation for twenty days. At the autopsy the brain and membranes were found hyperemic, and the ventricles containing an excess of fluid. The heart was greatly enlarged and surrounded by fat. All the cavities were dilated; the walls of the left cavities were of normal thickness, but those of the right cavities were double the normal thickness. The valves were all normal, but on the wall of the right auricle, about a third of an inch below (and obstructing the current of blood through) the orifice of the pulmonary artery, was a growth as large as a walnut that upon examination proved to be a fibroma.

The Association of Myo-fibroma and Carcinoma of the Uterus—EHRENDORFER (*Archiv für Gynäkologie*, Bd. xlii, H. 2, p. 255) maintains that the simultaneous presence of fibromata and malignant neoplasms of the uterus is more common than has hitherto been believed. In the removal of fibromata (hystero-myomectomy), before treatment of the pedicle, immediately after the removal of the tumor, the existence of malignant disease is to be looked for. If fibro-myomata of the uterus are associated with malignant disease, or, if reasonable suspicion of malignant disease exist, complete removal of the entire uterus is indicated. None of the modes of treating the pedicle after hystero-myomectomy, in particular the extra-peritoneal, will insure immunity to the recurrence in case of malignant disease of the uterine mucous membrane, even after thorough excision and cauterization of the stump. If, in cases of fibro-myomata of the uterus, there occurs profuse watery, mucous, or discolored discharge, or profuse hemorrhage, with severe pains, particularly at the climacteric period, a suspicion of the existence of malignant disease of the mucous membrane is warranted, and symptomatic treatment is to be replaced by operative treatment. It is important and interesting to determine if the recurrence of malignant disease of the body of the uterus is more common alone or in association with fibro-myomata.

Pseudo-photesthesia.—GRADENIGO (*Annales des Mal. de l' Oreille*, etc., vol. xviii, No. 8, p. 606) has reported the case of a healthy man, twenty-one years old, of excitable temperament, and without ocular derangement, who for two years had suffered with attacks of intense

headache. For a short time the patient had been conscious of a sense of occlusion and of fulness of the nares. The inferior turbinate of both sides was considerably hypertrophied. The sensibility of the parts was greatly exaggerated, so that the introduction of an instrument induced pain. Surgical treatment of the hypertrophic condition was followed by disappearance of the headache. When the nasal speculum was removed at the conclusion of each manipulation the patient perceived a flash of bright-red color. To this phenomenon of false sensation the name of pseudo-photesthesia has been given. It may appear in connection with any of the special senses.

Ligation of the First Portion of the Subclavian Artery and Excision of a Subclavio-axillary Aneurism.—HALSTED (*Johns Hopkins Hospital Bulletin*, vol. iii, No. 24, p. 93) has reported the case of a colored man, fifty-two years old, who for eight months had noticed a pulsating swelling below the left clavicle, progressively increasing in size. The tumor was smooth and almost spherical, and measured sixteen inches in circumference at its base. Slight pulsation was visible and palpable. The mass appeared to be solid but elastic. No pulse could be felt at the left wrist or at any point below the aneurism. It was determined to ligate the vessel and excise the sac. An incision was made from the sternal notch to the acromio-clavicular articulation, thence down the arm to the lower border of the major pectoral muscle over the greatest convexity of the tumor. From the inner extremity of his incision a vertical incision upward, some two inches long, was made. A third incision, about four inches long, was made vertically downward from the middle of the horizontal incision. Finally, a vertical incision, an inch and a half long, was made upward at the acromio-clavicular articulation. The flaps of skin were laid back. The wall of the aneurism was found inflamed, soft, and thin. Two strong silk ligatures were applied to the artery as it emerged from the chest, and the vessel was divided between them. The aneurism was then removed in one piece. The axillary artery was ligated at the beginning of its second part. The operation consumed three and one-half hours. The wound healed perfectly. Sixty days after the operation the patient had excellent use of the related arm.

The Electric Resistance of Urine.—TURNER (*Lancet*, No. 3594, p. 140) has found that in health the urine opposes an average resistance of 45 ohms to the passage of an electric current. The resistance varies, as a rule, inversely with the specific gravity. The proportion of urea has but little influence upon the degree of resistance, which depends almost wholly upon the salts. Pneumonia and diabetes constitute exceptions to the rule. The increased resistance in pneumonia depends upon the diminution of the chlorides; in diabetes, upon the relative diminution of all the salts, while the presence of sugar, by its viscosity, may tend to increase the resistance. In acute and chronic nephritis, in certain respiratory affections, in pernicious anemia and other forms of anemia, the resistance is high; in neurotic individuals of active mental capacity, and in some other conditions, the resistance is low. Other things being equal, the lower the electric resistance the healthier the condition of the kidneys.

THERAPEUTIC NOTES.

A Case of Acute Codeine Intoxication.—MEDVEI (*Internationale klin. Rundschau*, 1892, No. 36, p. 1457) has reported the case of a woman, forty-two years old, of profoundly neurotic tendencies who took 7½ grains of codeine with suicidal intent. For a half-hour the patient presented no unusual manifestations, unless, perhaps, for uncommon cheerfulness and mirth. At the end of this time, however, she complained of a sense of heat, of suffocation, of restlessness, and of vertigo. Soon, mental excitement, itching, and redness of the skin were superadded. The conjunctivæ were injected; the pupils were full and reacted sluggishly to light. Saliva dribbled from the open mouth and the tongue was shaken with tremor. The muscles of the face and extremities twitched convulsively. The knee-jerks were exaggerated, although there was no response to pressure or pricking. The pulse was 46 in the minute, full and hard. The contents of the stomach were evacuated by means of lukewarm water, copper sulphate, and a stomach-pump. The pulse subsequently rose to 116 and became feeble and soft. Mechanical irritability was now greatly increased. The deep reflexes were greatly exaggerated. The pupils were dilated to the utmost. The pulse grew weaker and cyanosis developed, so that artificial respiration and stimulation became necessary. After vigorous treatment, continued for several hours, the condition of the patient improved and the danger of a fatal issue was averted. On the following day the patient slept a good deal, but was easily aroused. A day later she complained of headache, of mental confusion, and of intense itching.

Asaprol is an α-monosulphone derivative of β-naphthol that appears as a calcium salt. It is a white powder, soluble in water (1 : 50), and in alcohol (1 : 3); it is unchanged by heat, is but feebly toxic, is well borne by the stomach, and is rapidly excreted by the kidneys. Asaprol is decidedly antimycotic. In doses of from 15 to 60 grains it acts as an antipyretic and anodyne. It has proved exceedingly useful in acute rheumatism. On the first day 30 grains are given; on the second, 45 grains; and on the following days 60 grains, until pain and pyrexia subside, when the dose is gradually diminished.—*Wiener medicinische Presse*, 1892, No. 35, p. 1394.

For Asthma.—

℞.—Potassii iodidi . . . . ℥iij.
Ext. belladonnæ fluid. . . . f℥j.
Ext. lobeliæ fluid. . . . . f℥ij.
Ext. grindeliæ fluid. . . . f℥ss.
Glycerini . . . . . f℥iij.—M.
S. A teaspoonful as required.

BARTHOLOW.

For Hemorrhoids.—

℞.—Iodoformi . . . . . gr. v.
Ext. belladonnæ . . . . . gr. x.
Chrysarobin . . . . . gr. j½.
Vaselin . . . . . ℥ss.—M.
Ft. ung. S.—Apply topically.

ROSOBUDSKY, *Rif. Med.*; *Münch. med. Woch.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

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1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, Including Postage in North America.

PER ANNUM, IN ADVANCE . . . . . $4.00.
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PHILADELPHIA.

SATURDAY, OCTOBER 1, 1892.

HOSPITAL FACILITIES FOR MEDICAL EDUCATION.

THE report made to the Senate of the University of Toronto by the HON. EDWARD BLAKE, Chancellor, and a special committee, is an admirable study, and will repay careful attention by those interested in the subject of medical education. It is not very complimentary to medical colleges in the United States, excepting Harvard Medical School, and as a saving parenthesis, "probably Pennsylvania,"—from which we gather that Pennsylvania was not studied. Had the committee, on leaving Boston, come to Philadelphia, it would have found that not only does the University of Pennsylvania, the Jefferson, Woman's, and Medico-Chirurgical Colleges, and the Polyclinic, each have, and utilize for teaching, its own hospital, with large out-door as well as indoor services, but that the unrivalled wards of the Philadelphia Hospital are zealously utilized by competent and ambitious teachers.

On the subject of the propriety of utilizing hospital wards for teaching purposes, which it seems was debated in Canada, as it has been in this city, the Toronto Committee, among other things, says:

"The interests of the hospital, the welfare of the public patients, the advancement of knowledge, and the improvement of medical education will all be served by an increase in the facilities for clinical instruction. The most famous and most frequented hospitals in the world are just those where the most clinical teaching has been done and the best use has been made of the opportunities presented. Patients recognize the value of attendance of clinical instructors whose double duties, as visiting physician or surgeon and clinical teacher, impose on them double responsibility for frequent and regular attendance, for great care, for thoroughness of examination in each case, and for repeated observation of its progress. Experience shows that patients rather enjoy than object to the examination."

As to the best manner of utilizing hospital wards and dispensaries the committee properly says:

"Adequate clinical teaching demands frequent contact of the students with the patient under the eye and ear of a trained instructor. We should aim at the creation of small and manageable classes at the same bedside day after day, under competent supervision. Numerous clinical instructors are required, since, all things being equal, the smaller the class the better the opportunity."

The methods of the Harvard School are, with its teachings in the Massachusetts General Hospital and the Boston City Hospital by numerous professors, assistant professors and associate professors, instructors and assistants, highly commended. One-half of each year's class of students goes round the wards daily for two years. *Each student* must get bedside instruction three times a week throughout the eight-months' session. The staff, consisting of five professors and three assistants in medicine, four professors and ten assistants in surgery, serves throughout the entire year.

But it is especially in Great Britain that the model has been found. In the great London hospitals the chief usually rises to his high grade by passing successfully through the lower courses of service: for example, that of clinical tutor and assistant. In these grades he must prove himself worthy against numerous competitors by hard work and by a long record as an observer and investigator, and generally it is some time after the prime of life, when his name has already become widely known, that he reaches this post. Thus patients obtain the best and ripest skill and experience in the world, while students must profit by the teaching of men who have spent perhaps twenty or thirty years in the various grades of clinical work, and have proved their right to their posts as excellent teachers and reliable investigators and observers.

The general rule is to place on the visiting staff

not only chiefs but also assistants, and to keep on duty both chiefs and assistants for the whole year, with the exception of the months of July and August, when the chiefs are relieved. The assistants are allowed great liberties and privileges, so that the position is one of attraction to men of parts, and the title one of honor.

In Paris, beside the professors, prosectors, internes and externes, there is an officer corresponding to the English assistant physician, or surgeon, designated *chef de clinique*, assigned to each professor. This *chef de clinique* does much clinical teaching in the wards and elsewhere on the cases of the professor.

In the Vienna hospitals attendance and instruction are carried on by the professor and assistants of various grades, paid by the authorities. In Strassburg the assistant gives the clinics on his professor's patients in the wards.

The committee, therefore, came to the conclusions that the best scheme of organization for a teaching hospital embraces a staff of assistant physicians and surgeons in addition to the staff of chief physicians and surgeons; that the number of assistants should be equal to that of the chiefs, and that the term of duty of the staff should be continuous, with the exception of the summer months, during which the assistants should be in charge; that theater lectures, while useful within their own important sphere, cannot prove an efficient substitute for bedside teaching; that pathology is so closely allied to clinical work that the two cannot properly be separated. There should be an efficient pathologic staff that should assist in bedside teaching and investigation when called upon by the attendants; and systematic records not only of the symptoms, but of the results of analysis and examination of the blood, fluids, and excreta should be required to be kept. To facilitate the attendance of students, necropsies should take place at stated hours, and while the work should be performed by the pathologist, it should be in the presence and under the direction of the attending clinician. A copy of the pathologist's record should be filed with the clinical records of the case. Clinical clerks and registrar should be selected with great care, and the staff should be responsible for some supervision of the work. If records are thus carefully and conscientiously made by the collaboration of the various officers referred to, from the highest to the lowest, statements of the main observations of importance and reports of cases of interest to the profession can advantageously be edited and published yearly or half-yearly by a committee of the staff.

Taking our own Philadelphia Hospital as an institution on a par with the Toronto General Hospital, in its relations to the public, although somewhat larger in its number of beds, it will be seen that most of the recommendations made by the committee of the University of Toronto could be well applied to the local institution. Many of them, indeed, are already in force. The visiting staff includes professors, assistant professors, and clinical lecturers of the various college faculties, who have the privilege of utilizing the wards for bedside instruction. In the matters of pathologic teaching, of records, of carefully selected, paid clinical clerks and of assistants adequately paid by the colleges to take a sufficient number of small ward-classes through the institution, we have not yet quite realized the recommendations of the Toronto committee. The Philadelphia Hospital Reports have begun to be issued, and will doubtless be continued from year to year. They should, however, be placed upon sale, by which means part, if not all, of the expense of production would be recovered.

EARLY STIMULATION OF SEXUAL CURIOSITY.

ONE who is acquainted with the modern American schoolboy need not be told that he is thoroughly well versed in the wisdom or unwisdom of sexual affairs, and that too often his knowledge is the result of experience. The "smart young man," either of city or country, has long since satisfied a morbid curiosity too soon aroused by his older playfellows, and whether by obscene books or the semi-scientific and semi-medical caterers to such markets, or worse yet, by the scandal-mongering newspapers, he has been prepared to understand and practise the art of sexual allusion and risky flirtation.

Many mothers cannot know how near their daughters rival their sons in this illicit knowledge, because too frequently the daughters are more *instruite* than the mothers. When the mothers were young ladies, fashionable conversation between young people was not a game at *sous-entendre*, a match as to which could suggest the most worldly wisdom and say the most improper things in the most proper manner. Hidden meanings that would have made their mothers blush run like subtle tremors beneath the mask of society talk and repartee.

Operatic and theatrical frivolity make sexual knowledge, of a lurid theoretical kind, a sort of necessity to the "bright young woman." She may not yet have actually partaken of the apple of the tree of knowledge, but she knows well enough "all about the old story," has learned the secrets in advance, probably has quiveringly "nibbled" at the apple and enjoyed its perfumed beauty.

One of the indirect causes that perhaps has most strongly contributed to this pernicious tendency has been the custom of allowing boys and girls to be alone in each other's company. Go where one may in our country, it is astonishing how it is taken as a matter of course that these youngsters may be safely trusted with each other, either in couples or in "parties" of all kinds. In the country "kissing parties" are by no means out of date, and boys reaching out toward puberty with discounted knowledge, are allowed to take the girls to meetings, buggy-rides, and all that. In the city the fact is the same, with the change of customs and circumstances. It is increasingly common to meet in every square numbers of these couples of boys and girls, and to overhear the scraps of conversation and the laughter that shows half-concealed pleasure at cunning insinuation. The innocent purity of the child's eye and expression early fades into the cunningly secretive answering glance that tells the observant mind of an indescribable unconscious grace replaced by a describable conscious disgrace.

All such customs serve to stimulate sexual desire and shorten childhood to a degree that subjectively is incompatible with proper development of body and mind, and objectively with the legitimate satisfaction of marriage. The more settled and advanced the civilization, the later the life-date of marriage. The fixation of thought, emotion, and not seldom action, upon a function thus early is not only useless, but is also cruel and dangerous. Our social customs tend to hurry children into sexual precocity and immaturity, the physician alone knowing a tithe of the resultant evils. Every social circle has its unspoken story of the strange disappearance of some bright girl, who at first went "visiting," and about whom questions are already out of place.

"Early ripe, early rotten," is a homely old saw, but like many such, egg-full of wisdom. It is a truism of science that on the lengthened period of growth or childhood depends the permanence and vigor of the adult life. By his advice and teaching the physician cannot, if he would, help being an instructor of morality—or immorality; and as no one so well as he is aware of the fatal consequences of this vicious precocity, he should improve every offering opportunity to make people understand its indirect causes and its direct results.

SEPTIC DANGERS OF ADHESIVE PLASTERS, ETC.

In a recent number of *The Lancet*, Dr. Myrtle traces a case of angeioleucitis and death to infection by microörganisms derived from the adhesive surface of a bunion-plaster. The suggestion is at once aroused as to how many of the frequent cases of septicemia from trifling injuries may not be traceable to a similar cause. Everybody carries about with him, or has in the house for ready application, one of the many varieties of commercial "court" or adhesive plaster. The contamination in the pocket or in the drawer or cupboard of the *omnium gatherum* that serves as the family medicine-chest may be a a ready source of septic infection, when the plaster is transferred directly to an abraded or bleeding surface. Moreover, no one knows where or of what materials these plasters are made, or through what hands they have passed.

There is in the commercial articles used no pretence, and certainly no fact of asepticity. All sorts of animal refuse are doubtless made use of in their manufacture, old animal skins, horns, hoofs, parings, etc., and how filthy the process of concoction and preparation may have been, no one is of course capable of saying. Physicians should caution their druggists and patients against the use of the commercial varieties of adhesive plaster, unless there is a proper guarantee and certainty of the article having been properly prepared, kept free of septic contamination, the raw surface of the wound properly cleansed, and so forth.

Perhaps quite as important a caution would be that as to the common filthy habit of wetting the "court-plaster" with saliva before its application. Cases, we believe, are on record of syphilitic infection by this means, and it can be readily seen that any species of autoïnfection or heteroïnfection may thus be easily brought about. Only sterilized, freshly-boiled, or sublimated water should be used.

The German Anthropological Congress will hold its twenty-fourth annual meeting at Hanover in 1893, under the presidency of Virchow.

REVIEWS.

THE STUDENT'S HANDBOOK OF SURGICAL OPERATIONS. By FREDERICK TREVES, F.R.C.S., Surgeon and Lecturer on Anatomy at the London Hospital. 12mo., pp. 508. Philadelphia: Lea Brothers & Co., 1892.

THOSE general practitioners and operating surgeons who are familiar with Treves's *Manual of Operative Surgery*, and who require a book for office or class use, will hail with pleasure the present work, which is intended for the use of students who are preparing for the final examinations, or who need a handbook to assist them in carrying out operations upon the dead body.

It concerns itself only with the most essential and most commonly performed operations, omitting the general principles of operative surgery, the consideration of the critical value of various methods, regional anatomy, after-treatment, mortality, and results. The operations belonging to plastic surgery are likewise not considered, except as they concern the common deformities of the lip and palate. The volume contains the very latest teachings, so far as they concern the technique of operative work.

The practical and highly commendable classification employed in the larger work is followed, the operations being classified, first, in relation to particular structures, ligation of arteries, operations upon nerves; second, as to character, as amputations, tenotomy, and plastic operations; and lastly, as to the part or region of the body involved, as operations on hernia, on the bones and joints, upon the neck, head, spine, etc.

While the abridged work lacks some of the features that make the larger manual characteristic of Mr. Treves, for example, the sound general principles of operative surgery, the clear anatomical descriptions, the application of the antiseptic principle rather than any particular method, it is marked by what is most important to the student—the author's originality in the performance of the individual operations. The operations are characterized throughout by surgical judgment, anatomical accuracy, and practical familiarity with the subjects under consideration.

The illustrations are good, the size convenient, and the work will doubtless become very popular on both sides of the Atlantic.

ESSENTIALS OF DIAGNOSIS. By SOLOMON SOLIS-COHEN, M.D., and AUGUSTUS A. ESHNER, M.D. Illustrated. 8vo, pp. 382. Philadelphia: W. B. Saunders, 1892.

THIS member of the "Essentials" series is fully up to the standard of the others that have already appeared. In a work of this character there is, of course, nothing original, the authors merely voicing the views of recognized teachers and dealing only with the questions that are already *facts* in medicine. In reviewing such a book, therefore, all that can be spoken of is the completeness with which the authors have accomplished their task and the practical utility of the book as a help to the student of medicine. The first of these features the present volume certainly possesses to a preëminent degree, each disease being completely, though briefly, discussed from the point of view of diagnosis and differentiation from other similar affections. In regard to the practical utility of the book as an aid to students it may be said that, as the authors state in their preface in regard to their own volume, it is a great mistake for the student to use such aids for any but a subordinate purpose, not allowing them to take the place of the larger works upon the various subjects, but using them rather as a means of reviewing their knowledge and condensing what they have learned from the more extensive text-books. Used in this manner the present volume cannot but be of service to the student.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF VIRGINIA.

Twenty-third Annual Session, held at Alleghany Springs, Va., Sept. 13–15, 1892.

(Continued from page 362.)

DR. BEDFORD BROWN, of Alexandria, Va., stated that vertigo is not a disease, but a symptom that may result from diametrically opposite conditions. It often precedes fatal postpartum or other uterine hemorrhage. Some of the most violent types of vertigo occur in the hysterical. Alcohol and tobacco, by their toxic action on the brain and sympathetic nerves, are fruitful causes of vertigo. Temporary indigestion and protracted dyspepsia (biliousness) cause "sympathetic vertigo." There are also uremic and other forms of vertigo. The therapeutics must vary with the case in hand. When vertigo results from plethora or congestive conditions, antiphlogistics—such as cathartics and simple diet—are required. When left ventricular hypertrophy induces high arterial tension, digitalis and nitro-glycerin are the remedies. Iron and strychnine are useful in the anemic. Full doses of ammonium valerianate and sodium bromide act promptly in the hysterical and nervous forms of vertigo. For the vertigo of albuminuria, nitro-glycerin, gr. $\frac{1}{60}$, three times daily, with saline aperients and diuretics, are valuable. Diuretin or theobromine salicylate, from three to five grains in capsule, every two or three hours, is a useful eliminant. In "bilious vertigo"—vertigo sympathetic with indigestion—acid fermentation and putrefactive action are to be corrected by alkalies, followed by hydrochloric acid, pepsin, strychnine, bismuth subnitrate, etc. In conditions of nervous debility, pills of iron valerianate, quinine, and zinc are excellent. The urine should always be examined for albumin, casts and sugar. Chronic nephritis and diabetes melitus are almost invariably attended with more or less vertigo; benefit will usually be found from the use of a grain of codeine at night, nitro-glycerin, and tincture of the chloride of iron, with anti-diabetic diet during the day.

DR. JOSEPH A. WHITE, of Richmond, Va., stated that aural vertigo accompanies hyperemia and anemia and hemorrhagic conditions of the labyrinth (Ménière's disease), which are usually associated with corresponding cerebral alterations. Impacted wax or other compression of the labyrinthine fluid, alterations of the vestibule and ampullary nerves, etc., cause vertigo. Ophthalmic vertigo results from lack of coördination of the ocular muscles. Nasal vertigo is probably but a variety of aural vertigo. Laryngeal vertigo is usually preceded

by laryngeal irritation and followed by brief loss of consciousness, generally complete. The condition is so much like *petit mal* that it has been called "laryngeal epilepsy." Rarely is any lesion discernible in the larynx, although some cases have seemed dependent on a chronic laryngitis.

Dr. Joseph Price, of Philadelphia, Pa., strongly condemned the indiscriminate administration of opiates.

Dr. Charles W. Cleaves, of Wytheville, Va., read a paper entitled "Mysteries of Medicine," in which he recounted many of the ludicrous and absurd medical practices and teachings of centuries ago; of the quacks and charlatans of the present generation; closing with a description of the eminently true physician of to-day.

Dr. R. S. Martin, of Stuart, Va., read a paper on "Puerperal Fever." He reported two cases of septicemia, one of which developed on the fifth day after labor and the other after an abortion at the fourth month. In both recovery followed antiseptic treatment.

Dr. Martin also reported a case of strangulated inguinal hernia of four days' standing. Herniotomy was performed and the gut returned to the abdominal cavity. The wound sloughed on the tenth day, and fecal matter passed for three weeks by the artificial opening, which gradually closed, so that now the patient passes fecal matter per rectum, is in good health, and able to do her housework.

Dr. Joseph Price, of Philadelphia, Pa., expressed the view that puerperal fever may be dependent upon inflammation induced by gestation in a small, hidden fibroid of the uterus whose previous existence had perhaps been overlooked. Nevertheless, absolute cleanliness cannot be too much insisted upon in every maternity. No woman ought to die of childbed fever contracted by so-called "infection from without." When childbed fever does occur, nothing short of section will save some patients. Purgation is better than no treatment; but if tumor, pus-tubes, abscess, or other discharge get in the abdomen, nothing short of surgery will save. Dilatation, curetting, etc., will not do so. Undoubtedly there is such a disease as endometritis; but the cases under consideration are not fit for the curette. It is best to look upon all women just after labor as wounded. All injuries in childbed are to be looked after and treated as if ovariotomy had been performed. Physicians have been too much carried away with the idea that labor is a physiologic process, and not needing therapeutics. The preparatory treatment of the patient consists in vaginal douching with mercuric chloride solutions—before, during, and after labor. The placenta is expressed—not pulled out. The ante-partum vaginal douche prevents ophthalmia neonatorum.

Dr. Edw. Ricketts, of Cincinnati, Ohio, read a paper entitled "Colon Irrigation and Feeding per Rectum; How best Attained." He demonstrated a rectal tube of the length of the colon, and reported cases in which he had washed out the colon and administered nourishment by depositing the nutrient enema between the ileo-cecal valve and the rectum, and described and showed how to introduce the tube.

Dr. Samuel J. Fort, of Ellicott City, Md., read a paper entitled "What Shall be Done with the Imbecile," in which he related the history of the work of caring for imbeciles, as inaugurated by the elder Seguin nearly a half-century ago. He stated that no less than fifteen States make provision for the care of the imbeciles within their borders, so that, with nearly as many private institutions, almost 4000 defective children are under training. According to the census of 1890 there are 95,571 idiots and imbeciles in the United States, and as there is so small a number under training, Dr. Fort made an appeal for more particular attention to the needs and demands of this class. Even if sentiments of charity did not dictate their care, motives of true economy and the principle of self-protection upon the part of the community demanded State provision in the shape of proper institutions in which these defectives could be properly classified, educated, and trained to self-support as far as their mental capacity would permit.

In conclusion, Dr. Fort claimed that the work contemplated something more than a mere gathering together of a few children in training-schools, but that as the correlation of idiocy, insanity, pauperism, and crime would be better understood, here and there through the country will be scattered "villages of the Temple," from which "they shall go out no more, and they shall neither marry nor be given in marriage in those havens dedicated to incompetency."

Dr. Alex. Duane, of New York, read a paper entitled "Common Sense in the Treatment of Discharge from the Ear," in which he stated that the therapeutic principles to be enforced were the same that govern suppuration anywhere else, namely, cleanliness, drainage, and the removal of the badly-diseased tissues. Irrigation with a solution of common salt is best for thorough cleansing. To force out the residual discharge, Politzerization may be used as an adjuvant to the syringe. If this treatment does not cure, astringent powders (boric acid, alone or combined with zinc oxide) should be used, but only after thorough cleansing by irrigation. In removing the granulations and polypi, a good light and full control of the patient are essential. The recurrence of the granulations can be checked by the use of alcohol, with or without the addition of corrosive sublimate. In cases of caries, iodoform is to be employed. Except in extensive caries, or when the drainage is prevented either by position (in the attic) or by inflammatory hypertrophy, these measures will usually be successful; but, if they should fail, the diseased parts (drum-head and ossicles) should be removed at once, and by a specialist, if possible, as the operation requires great delicacy of manipulation.

Dr. G. Betton Massey, of Philadelphia, read a paper on "Modern Electrical Methods as a Substitute for Surgery in Certain Pelvic Affections," the conditions considered being fibroid tumors, "diseased ovaries," and displacements. He had treated sixty-eight cases of fibroids, with sixty-four practical cures. In seven cases the tumors disappeared entirely; the remainder presented various degrees of shrinking; all were symptomatically cured. The best results in these growths are not to be attained by triflers, jacks-of-all-trades, or surgeons who are nursing cases for operation; nor even by the most conscientious worker who is unfitted to gain expertness by reason of an ambition to become an abdominal surgeon. The diseased ovaries complained of by knowing patients, and removed wholesale by surgeons, represent but a part of the trouble with which the patient

suffers, the original causative metritis remaining an important factor. Such cases are often worse after castration than better, because the real disease has been left untouched. By properly-directed galvanic treatment of the uterus the latent microbic catarrh and consequential enlargement may be reduced, and the patient returned to society a whole woman. The causal conditions of displacement are similar, and, in spite of the growth and acceptance of the germ-theory of these affections, many physicians still continue the irrational employment of a skeletal support within a cavity that should have its atrophied muscles strengthened and its hyperplasias reduced.

DR. ROBERT O. OWEN, of Lynchburg, Va., read a paper on "Excision of the Female Breast," in which he stated that a large percentage of the growths of the female breast are, or, if neglected, will become malignant. Painful enlargements of the breast, not ordinary abscesses, should be watched, and excised if the slightest disposition to malignancy presents itself. He reported the case of a girl nineteen years old, with an ulcerated scirrhus of the right breast, which he removed.

DR. CHARLES M. BLACKFORD, JR., of Lynchburg, Va., read a paper on "Bacteria and Disease." He stated that bacteria affect human tissues in several ways: 1. The bacterium directly attacks and destroys the tissue in which it lodges. Thus, in inflammation followed by pus-formation, pyogenic bacteria are probably directly responsible. 2. A by-product of the life of the microorganism is the agent that immediately does the damage. Thus, in tetanus the active poison is an alkaloidal product, or a mixture of such products, resulting from the life of the bacillus tetani. These alkaloidal products may be isolated, and are as certain to produce tetanus, if introduced into the system in sufficient quantity, as morphine is to produce its physiologic effects. 3. Some bacteria are pathogenic only at times; under some peculiar environments they acquire malignancy. 4. Conversely, some bacteria, that are naturally violently malignant, in an unsuitable medium become attenuated, so that, on inoculation, only a mild type of the disease will follow.

DR. JOSEPH PRICE, of Philadelphia, Pa., commended asepsis rather than antisepsis, and detailed the method employed and details observed by him in operations.

DR. L. G. PEDIGO, of Roanoke, Va., defended Listerism. Germs cause suppuration and destruction of organic tissues, but chemical agents suffice to destroy them.

DR. THOMAS J. MOORE, of Richmond, Va., contended that asepsis is simply a step in advance of antisepsis.

DR. SAMUEL T. EARLE, of Baltimore, Md., reported a "Successful Case of Colectomy for the Closure of an Artificial Anus." A colotomy had previously been performed by him in February, 1892, for ulceration of the descending colon. This resulted in the cure of the patient, who then wished his artificial anus closed. The operation was performed June 6, 1892. The method of enterorrhaphy devised by Dr. Halsted, of the Johns Hopkins Hospital, was used, and was found very satisfactory in every particular. The patient had an evacuation from his bowels, per rectum, on the sixth day after the operation, and left the hospital at the end of the third week.

DR. M. W. O'BRIEN, of Alexandria, Va., read a paper entitled "Injuries of the Knee; Their Treatment and Results, with Special Reference to the Prevention and Cure of Suppurative Action in and about the Joint." He expressed the view that in the treatment of wounds and congestive and inflammatory conditions at or near the knee-joint it should be a surgical axiom to afford the joint and the entire limb from the body down absolute rest by fixation. If serum is effused into the knee-joint it should be antiseptically withdrawn; the foot should be elevated, and the entire limb put in plaster, with the leg straight. This plaster-dressing makes both extension and counter-extension, securely locks the joints, holds the muscles firmly but gently in place, and controls the reflexes. The limb rests, circulation is equalized, pain is relieved, heat and fever subside, and the patient rests without an opiate. This splint can be opened its whole length like a book, the joint inspected, etc., and the mould put back and held with a roller; in brief, the limb is kept in as comfortable a position as possible. In case of injury to the knee-joint the extremity should never be dressed in a flexed position. Though some surgeons prefer this position, experience and results prove that it is not the best—particularly so if the flexion is great. With the limb in a straight position, perfect rest is secured. To apply evaporating lotions and put the leg at so-called rest on a pillow can result only in evil. By keeping the leg straight in the plaster-dressing suppuration and ankylosis are rare. Should pus form, the joint is to be widely laid open, the fluid thoroughly washed out, drainage-tubes introduced, and the wound flushed with corrosive-sublimate solution, while the general condition of the patient is to be improved by food and the use of quinine.

DR. JOHN HERBERT CLAIBORNE, JR., of New York, read a paper entitled "Acute Inflammatory Earache." He referred only to cases of earache dependent upon acute inflammation of the lining membrane of the middle ear. Among causes he included the agencies that give rise to acute colds in general, the entrance through the nose and naso-pharynx into the Eustachian tube of salt-water in bathing, the blowing of mucus into the Eustachian tube by forcible and violent blowing of the nose, the use of the nasal douche by the method of "snuffing up" the liquid. As to treatment, he strongly opposes paracentesis of the drum of the ear, as being dangerous, except in the hands of an expert. Dr. Claiborne always empties the middle ear sufficiently for immediate comfort by using the Eustachian catheter and by gradual, long-continued, and repeated inflations, repeated three or four times in a few hours. In subacute cases he applies a 4 per cent. solution of silver nitrate, but not in acute cases. Sometimes he sprays Dobell's solution in the nose and throat. The most reliable treatment consists in:

1. Hot 10 per cent. solutions of cocaine instilled into the outer ear, and retained for from five to ten minutes.

2. Hot solutions of boric acid instilled into the outer ear; spongio-piline wet in hot water and applied over the whole region. Hot salt and hot water-bags similarly used are also useful.

3. Inflation by the bag and by the continuous method with the Eustachian catheter.

4. The administration of a drastic dose of Epsom salts, which is used as a simple systemic remedy.

Blistering behind the ear is of no service in acute aural catarrhs, but may be of assistance after the acute stage has passed.

DR. GEORGE TUCKER HARRISON read a paper on "Gonorrhea in Women." He classified gonorrhea under four heads: (1) Acute perimetritis; (2) Recurrent perimetritis; (3) Chronic perimetritis, and (4) Ovaritis. Microscopic examinations have demonstrated the presence of gonococci in pus taken from diseased tubes, and it is generally conceded that most of the inflammatory conditions of the tubes can be traced to gonorrheal infection. The symptoms are uterus enlarged and sensitive, menstruation profuse, painful, and frequently accompanied by dysmenorrhea. The infection rarely extends from the uterus to the Fallopian tubes, producing purulent salpingitis, the pus, by this route reaching the peritoneal cavity, producing circumscribed peritonitis, and involving to a greater or less degree the ovaries and the broad ligaments. Pain ensues, and pus exudes from the distended tube of the corresponding side. In consequence inflammatory action is set up; the tube becomes occluded by adhesions; then distended; loses its curves; and becomes sausage-like. Any over-exertion brings on an acute attack producing peritonitis. Nervous symptoms are induced that result in neurasthenia or hysteria. Sterility often results. In treatment, prophylaxis naturally claims the first and most careful attention. It is hardly possible to stamp out the disease, though the general practitioner can correct it to a large extent. The gynecologist should be careful in dilating the womb of a woman who is affected with gonorrhea, as the infection is easily carried into the uterine cavity, thence to the tubes, etc. Operations are not always demanded, as dilating the uterus and curetting and packing with iodoform-gauze will often relieve, but if conservative methods fail, then the surgeon's more radical aid is demanded. Operations are justifiable only when not more dangerous than the disease itself. Owing to recent advances in surgery, the risk is robbed of many of its dangers; but the environment of the patient must always play an important part in the treatment.

DR. WILLIAM LEE HOWARD, of Baltimore, read a paper entitled "Hypnotism as a Therapeutic Agent," in which he gave a comprehensive idea of the limits of the subject. He expressed objection to the name, as it implied sleep, while but few cases require putting to sleep. He maintained that all public demonstrations of this subject should cease, and that laws should be enacted allowing only reputable medical men to practise hypnotism, and admitted that many hypnotic subjects can be made to commit any crime.

DR. IRVING C. ROSSE, of Washington, D. C., read a paper on "Sexual Hypochondriasis and Perversion of the Genesic Instinct," in which he considered the various means employed to produce a venereal orgasm independently of the conditions of normal coitus, and known comprehensively as genital abuse. Of all hypochondriacs, those that refer their sufferings to the genital organs are the most miserable.

The question of sexual perversion is one of social hygiene touching mental pathology in many points. It must be recognized that continuous suggestion, or the reading of lewd literature, or excessive indulgences in fondling embraces under improper circumstances do affect the lower lumbar reflexes in such a way as to bring about sexual hypochondriasis, not to mention their influence in the dissemination of immorality and the encouragement of crime. The treatment of cases of unnatural practices consists in prevention and education, with employment of proper medical and surgical measures. Self-control should be cultivated, especially at the epoch of puberty. As an adjuvant, nothing is better than gymnastic and athletic training.

DR. JOSEPH PRICE, of Philadelphia, Pa., read a paper on "The Treatment of Hard Tumors in the Pelvis." He advocated early treatment of small abdominal and pelvic tumors, before real danger develops. Many a death that has followed the removal of large tumors has been attributed to surgery, when the too long neglected condition of the patient was at fault. Recovery is rare in cases in which pus has formed in the pelvis, without surgical intervention. Dermoid tumors especially require early attention. A tumor that is small and very painful may be suspected to be a dermoid. Small, hard tumors in the pelvis are likely to interfere with conception, and often with delivery. A dermoid cyst on one side may cause abortion after abortion, when the other side is entirely healthy.

The nature of the neoplasm will determine whether or not an operation is justifiable. Tumors of the uterus, though small, may be dangerous by reason of their shape, as they often assume unusual forms, and are likely to exert pressure upon organs in their vicinity, as the kidneys, bladder, or rectum, while they may interfere with pelvic circulation to a serious extent. As results of such pressure there may be much edema and pain, while the cause itself seems altogether inadequate. Small tumors are the easier to operate on, and are the less complicated. The greater the size of the tumor, the longer the incision, and the more protracted the operation. Large tumors often have extensive adhesions to the bowel, omentum, and peritoneal parietes. Such a condition is exceptional in small tumors. If the tumor is allowed to go on to cystiform or to malignant degeneration, the result of the operation is all the more serious. Rupture of the cyst may occur, with leakage, and be followed by general peritonitis; while a malignant growth may invade the whole abdomen. In many cases of uterine fibroids the appendages are also diseased. The ovaries may degenerate into cystomata, while the tubes, adherent and deeply imbedded in the pelvis, are also likely to be occluded and to contain some poisonous fluid. In puerperal hysterectomy, the verdict of experienced operators is strongly against the intra-peritoneal method of procedure. The extra-peritoneal method gives almost perfect results in pueperal hysterectomy. The method practised by Tait, Bantock, and others is to secure the stump outside the abdominal wound by a *serre-nœud*. This is preferred because the stump is composed of contractile tissue, the shrinkage of which, when constricted as a whole, permits of relaxation of the pressure on the vessels, with the danger of fatal hemorrhage. The extra-peritoneal method affords the only assurance against hemorrhage.

The Kœberlé *nœud* is the best of instruments of its kind when carefully applied to a well-made pedicle, transfixed by two long pins before cutting away the tumor. The pedicle is to be firmly drawn into the lower extremity

of the incision, the parietal peritoneum stretched below the line, and the incision closed.

The value of the elastic ligature method lies in the fact that the ligature contracts upon the tissues as they shrink, and thus maintains a continuous contraction.

Among accidents that may follow operation are constriction of one or both ureters, or of a portion of the bladder and inclusion of a portion of the bowel in the *serre-nœud*. These may be avoided by incising the capsule high up on the tumor — from four to six inches above the bladder or below the tubal and ovarian attachments to the tumor. The capsule of the tumor is to be retracted to the surgical neck of the uterus or to the circumference of the internal os. The pedicle should consist of cervical tissue only—small, reduced, and carefully constricted. The risk of hemorrhage, sloughs, and suppuration above the pedicle are minimized by making a small pedicle, well placed in the lower angle of the incision. It is dangerous to apply the *serre-nœud* about the base of the large irregular tumor, without first having manufactured a pedicle. Drainage is always to be provided for when there are extensive adhesions or pathologic changes due to pressure. The tubes should be kept dry and clean. Three or four stitches should be introduced between the tube and pedicle. In the after-treatment dry dressings yield the best results, and need not be changed for ten or twelve days. Silkworm-gut is the strongest, finest, cleanest, least irritating and most reliable of the suture materials. The recumbent posture should be maintained for six or eight weeks, to favor organization and consolidation in the line of the incision.

Insanity has been frequently observed after hysterectomies, ovariotomies, etc. On the other hand, as many, if not more cases of insanity have been cured by the operations.

DR. F. M. BROOKES, of Fairfax Station, read a paper on "The Continued Administration of Digitalis, Illustrated by the Report of a Case."

The points of interest in the case were the long-continued use of the drug—from November, 1889, to September, 1892; and the size of the dose—35 drops three times daily.

CORRESPONDENCE.

RÖTHELN (RUBELLA).

To the Editor of THE MEDICAL NEWS,

SIR: Several articles that have appeared in THE MEDICAL NEWS (July and September numbers) on the subject of Rötheln induce me to give, in abstract, some interesting and instructive facts concerning the history and differential diagnosis of "rubella" (Rötheln), gleaned from medical literature, which are, perhaps, not generally known to the busy practitioner.

Before doing so I wish to make a plea for the substitution of the name "rubella" for Rötheln in the English language. Rötheln (pronounced "rœteln") is mostly pronounced *à l'anglaise—i. e.*, incorrectly—becoming meaningless and offending to the ear. It is a purely German word, originating from the German adjective "roth" (pronounced "roat") "red," really meaning, "little red spots." The name "rubella" was proposed and used by Squire, and, after him, by other prominent medical authors and teachers. It will be understood by everybody, and will also be correctly pronounced. We might as well use, instead of "pneumonia" or "lung-fever," the German word "Lungenentzündung; or, instead of "parotiditis," the German for it, "Ohrenspeicheldrüsenentzündung."

As to the differentiation of "rubella" (Rötheln) from measles, Squire says: "A century was required to complete the separation of measles from smallpox. Another century passed, from Sydenham to Withering, before scarlet fever was finally distinguished from measles . . . The century is fulfilled that should give autonomy to rubella."

Von Genser,[1] of Vienna, reported three cases of "rubella" following measles in three children in the same family. He gives the following table of differential diagnosis of "rubella" (Rötheln) from "measles," based principally upon the publications of Griffith and Atkinson, and upon personal experience.

RUBELLA.	MEASLES.
1. INCUBATION.	
Very variable; may last from one day to three weeks, but rarely less than one week.	Mostly fourteen days, with extremes of seven, nine, or ten days.
2. PRODROMES.	
Usually none; or, if present, at most of from twelve to fourteen hours' duration.	Duration generally is three days; on the fourth day the exanthem appears.
A. *Catarrhal symptoms.*	
Frequently entirely absent; or, if present, slight, and limited to trifling hyperemia of the conjunctiva; catarrh of the nose, pharynx, or bronchi is much rarer.	Nearly always present in a marked degree; invade the conjunctivæ, nose, and air-passages; severe cough. These symptoms are always more marked in *even mild cases of measles than in severe cases of rubella.*
B. *Vomiting.*	
Very rare.	Less rare.
C. *Fever.*	
Mostly very slight, or entirely absent; the temperature rarely rises above 100.5° F.	Always present: often pronounced.
3. ERUPTION.	
Pale rose-red in color. Macular. The spots are usually spherical and discrete; they rarely tend to confluence; they are smaller than those of measles. Appears first on the face and extends rapidly, so that often it has disappeared from the places first attacked before other parts become invaded. Sometimes it shows a maximum duration of twenty-four hours or less, but remains generally for forty-eight hours.	Deep red, raspberry color. Maculo-papular. The blotches are usually of irregular outline, often coalescing into larger blotches of a dark purple-red color. Appears first on the face, but gradually extends, within two or three days, over the whole body. The spots remain in complete bloom until the maximum is reached. They usually begin to disappear on the sixth day.
Catarrhal symptoms continue in slight degree.	*Catarrhal symptoms* are more intense; often violent bronchitis is present.
Slight sore-throat is often present, not interfering with swallowing; a punctate or diffused redness appears upon	*Sore-throat* is rare. From eighteen to twenty-four hours before the eruption appears upon the skin, small papules

[1] Jahrb. f. Kinderheilkunde, Bd. xxviii, p. 420. Translated by Albert Pick, M.D., in the "Annals of Gynecology and Pediatrics," July, 1890.

the mucous membrane of the pharynx.	or spots of the size of a flax-seed may be seen scattered over the mucous membrane of the pharynx.
The temperature is rarely over 100.4° F., and often normal on the second day. There is no apparent relation between the temperature and the eruption.	*The temperature* is usually between 102° and 104° F., rising slowly. Its maximum bears a close relation to that of the eruption. Complete decline seldom occurs before the seventh or eighth day.
The lymphatic glands behind the ear and in the neck are always enlarged. (To this too much weight is attached by some authors. On the one hand, many cases of rubella occur with little or no significant swelling of the glands. On the other hand, this feature is frequently described as present in measles.)	*The lymphatic glands* are only sometimes enlarged.
Diarrhea almost never occurs.	*Diarrhea* is frequent during the eruption.
Desquamation is very rarely observed, and then only in the form of light, hardly visible furfuraceous scales.	*Desquamation* is furfuraceous and constant, lasting for several days.
4. Complications.	
Unusual.	Usual; the respiratory organs being especially involved.

Albert Pick, M.D.

Manchester, N. H.

THE AUTUMN CLIMATE OF ATLANTIC CITY.

To the Editor of The Medical News,

Sir: Numerous medical friends have inquired of me concerning the climate and sanitary condition of Atlantic City in the autumn. Still others I hear of, who have advised their patients against remaining here during the fall months. This doubt and prejudice can only be explained by the faulty conditions that existed before the days of sewerage and water-works. This subject has been fully discussed by me in a paper published in the Baltimore *Medical Journal* of December 14, 1889.

It has always been a source of wonder to me that during the three months—September, October, and November—when out-of-door life at Atlantic City is for invalids and convalescents the most enjoyable and healthy, September, especially, being here the most delightful month of the entire year, very few visitors are found in the hotels. It is natural, of course, that the crowd of mere pleasure-seekers should hasten back to the cities with the opening of the schools and the resumption of activity in all lines of business; but what of the thousands of ailing ones who are always better for being away from the foul and ozoneless urban air, and usually receive positive benefit from a sojourn at the seaside at any season when they can spend most of their time safely and enjoyably out of doors? Many such who spend the summer at the shore, tire of its attractions by September, and go to the mountains for a change; but the same logic should send to the shore the many invalids who, after a summer in the mountains or at the springs, find the chill autumn nights unwelcome, and yet cannot safely return to the city.

The meteorologic conditions make the autumn climate at Atlantic City particularly equable and balmy, more so than at any other season except the latter part of summer, when practically the same conditions exist. Bright, sunshiny days are the rule, clouds or rain the exception. The temperature during the daytime varies from about 70° to 80° in September, from about 60° to 70° in October, and is more often above than below 60° during the middle of the day in November. Sea-breezes prevail during the early autumn more generally than at any other time of the year, and the ocean being such an immense body of water retains its heat long, thus aiding greatly in elevating and equalizing the temperature of the air.

Next, as to the sanitary condition: The place has been supplied with an improved system of underground sewerage since the year 1885, and with a pure water-supply brought from the mainland since 1882. More recently, a second system of water-works has been introduced, which supplies water of the finest quality from deep artesian wells. That part of the town in which ninety-nine hundredths of the hotels and boarding-houses are found, to wit, that fronting on the ocean, and extending back nearly half a mile to Atlantic Avenue, leaves little to be desired in the matter of sanitation. The public houses devoted to the entertainment of vistors, as well as the cottages that are rented to the same class in spring and summer, are almost universally connected with the sewers, and in any of such connected houses the most delicate and sensitive invalids are, beyond question, as safe at any season of the year from miasmatic or zymotic diseases as they could be in any part of the habitable globe. Malarial diseases, such as intermittents and remittents, do not arise in the town; at least, during my residence of fifteen years I have seen none that could have been even suspected of having originated here. Very respectfully yours,

Boardman Reed, M.D.

Atlantic City, N. J.

A GOOD WORD FOR THE PHARMACIST.

To the Editor of The Medical News,

Sir: So many articles have appeared in the medical journals charging pharmacists with incompetency, substitution, extortionate charges, illegitimate sale of patent medicines, counter-prescribing, etc., that I feel that there are two sides to the question. I believe that physicians should carry and dispense at the bedside such remedies as are at the time necessary, not because the homeopath does, but that the patient should receive relief as soon as possible, in this way saving much suffering and ofttimes life; while the writing of prescriptions should be reserved for medicines that are to be used for a longer time and in greater quantity.

Most of the pharmacists of to-day are educated men, and their skill enables physicians to use and dispense their remedies in a convenient and quickly-acting form. How many physicians graduated during the past ten years from the various medical colleges could be trusted to prepare and dispense the medicines used in ordinary practice? Few indeed, unless they had previous pharmaceutical training. The knowledge of materia medica and chemistry required of graduates in pharmacy is far greater than that required of graduates of medical schools, while the *practical* pharmacy taught at medical colleges is indeed insignificant.

If physicians are to be dispensers of medicine, not only should a preliminary course in physics and chemistry be required, as suggested in your editorial of July 30, 1892, but a more thorough training in pharmacognosy and pharmaceutics should also be given before the teaching of therapeutics is begun, extending the course even to five years if necessary, as advised by the late Prof. S. W. Gross—for such knowledge is more essential to the physician than a knowledge of German and French, although I would not decry these.

Regarding extortionate charging, no man who expects to continue in business will charge more than his neighbor, or more than a fair value for his goods. In my experience as a pharmacist during eleven years I found that the fault-finding and charges of substitution came from physicians, as a rule, who were so grossly ignorant of the "tools they work with" that, being disappointed in the use of a prescription, copied perhaps from some formulary, they sought to cover their ignorance by crying "fraud."

When medical colleges shall teach the requisite amount of physics, chemistry, pharmacognosy, and pharmaceutics to fit their graduates to dispense medicines, then the teaching professors in our medical colleges will not so severely criticise a State Board of Examiners that asks "How is phosphoric acid prepared," or "Give the specific gravity and physical properties of chloroform."

Regarding patent medicines, I do not believe that many pharmacists handle them from choice, but from necessity. I would not altogether condone this fault, but how could they otherwise fill prescriptions and orders, as I have had to do, for Ayers' Cherry Pectoral, Jayne's Vermifuge, and even Humphrey's Specifics, sent by members of County and State Medical Societies, to say nothing of the semi-proprietary "formula on the bottle" mixtures daily prescribed by physicians.

It is actions like these that discourage and antagonize the true pharmacist, who should be our friend and ally; and I do not wonder that at times he thinks he can prescribe as well as some of his medical acquaintances. Do you?

THEO. G. DAVIS, M.D.

BRIDGETON, N. J.

THE SELECTION OF A CLIMATE FOR TUBERCULOUS PATIENTS.

To the Editor of THE MEDICAL NEWS,

SIR: A few words in behalf of the tuberculous patient in selecting a suitable climate may not be amiss. It is of frequent occurrence that such a one dies while *en route* across these mountain ranges, or within from one to three weeks after his arrival among them.

If a tuberculous patient is compelled to use his full lung-capacity in low altitudes to obtain sufficient air, it would be worse than useless to send him to high altitudes, where he must breathe more air to obtain a corresponding amount of oxygen.

To make this plain, we may approximately add for each thousand feet of elevation one-thirtieth to the volume of air required. In proportion, then, as the lungs are diseased must the elevation be chosen. This rule not only applies to the condition of the lungs, but the heart must do more work as we ascend.

With these facts in mind there would be less mistakes made in selecting a climate for these unfortunate people.

Respectfully,

N. E. CHARLTON, M.D.

TRINIDAD, COLO.

BOOKS AND PAMPHLETS RECEIVED.

Hystero-myomectomy; with a Report of Four Cases. By Hunter Robb, M.D. Reprint, 1892.

Bacteriological and Clinical Investigation into the New Antiseptic—Dermatol. By Arthur K. Stone, M.D. Reprint, 1892.

Diabetes Mellitus. By J. O. Jenkins, M.D. Reprint, 1892.

Concerning Muscular Advancement. By Lucien Howe, M.R.C.S. Eng. Reprint, 1892.

Book on the Physician Himself, and Things that Concern His Reputation and Success. By D. W. Cathell, M.D. Tenth Edition, carefully Revised and greatly Enlarged. Philadelphia and London: The F. A. Davis Publishing Company, 1892.

Proceedings of the Third Annual Meeting of the Tri-State Medical Society of Alabama, Georgia, and Tennessee, 1892.

Evolution from a Scientific Standpoint. By John Pope Stewart, M.D. Reprint, 1892.

The Lacerated Cervix. By W. G. Bogart, M.D. Reprint, 1892.

Bromide of Ethyl as an Anesthetic. By E. H. Kuykendall, M.D. Reprint, 1892.

Should Not Oculists be More Careful in Prescribing Colored Glasses? By W. L. Bullard, M.D. Reprint, 1892.

Progress of Medicine. Medical Legislation vs. Homeopathy. By Frank H. Barr, M.D. Reprint, 1892.

Preliminary Observations on the Pathology of Sea-sickness. By J. A. Irwin, M.A., M.D. Reprint, 1881.

The Influence of Sea-voyaging upon the Genito-urinary Functions. By J. A. Irwin, M.A., M.D. Reprint, 1885.

Electricity vs. the Curette in the Treatment of Bleeding Fibroids of the Uterus. By Augustin H. Goelet, M.D. Reprint, 1892.

Medical Manhood and Methods of Professional Success. By C. H. Hughes, M.D. Reprint, 1892.

Insomnia in an Infant, with Reflections on Pathological Sleeplessness. By C. H. Hughes, M.D. Reprint, 1892.

Note on the Hysterical Concomitants of Organic Nervous Disease. By C. H. Hughes, M.D. Reprint, 1892.

Dipsomania. By Lucius W. Baker, M.D. Reprint, 1892.

Human Monstrosities. By Barton Cooke Hirst, M.D., and George A. Piersol, M.D. Part III. Philadelphia: Lea Brothers & Co., 1892.

A Manual of Chemistry. Inorganic and Organic, with an Introduction to the Study of Chemistry. By Arthur P. Luff, M.D., B.Sc., Lond., M.R.C.P. Illustrated with 36 Engravings. Philadelphia: Lea Brothers & Co., 1892.

The Essentials of Histology, Descriptive and Practical. For the Use of Students. By E. A. Schäfer, F.R.S. Third Edition, Revised and Enlarged. Illustrated. Philadelphia: Lea Brothers & Co., 1892.

Rupture of the Aortic Valves, with Demonstration of Specimen. Aneurisms of Right Auricular Appendix. By Ludvig Hektoen, M.D. Reprint, 1892.

Education of Business Men. An Address before the American Bankers' Association. Reprint, 1892.

Second Annual Announcement and Catalogue of the School of Medicine of the University of Texas, Session of 1892–93. Austin: Henry Hutchings, 1892.

Circular No. 34, State Board of Health, Commonwealth of Pennsylvania, 1892. Treatment of the Apparently Drowned or Suffocated.

Circular No. 35, State Board of Health, Commonwealth of Pennsylvania, 1892. On the Prevention of Blindness.

Genito-urinary and Venereal Diseases. By Charles H. Chetwood, M.D. "The Students' Quiz Series." Philadelphia: Lea Brothers & Co., 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, OCTOBER 8, 1892. No. 15.

ORIGINAL ARTICLES.

CATARRHAL FEVER IN CHILDREN.

BY D. T. LAINÉ, M.D.,
OF MEDIA, PA.

CASE I.—On March 26th I was hurriedly called to attend R. M., a child about two years of age, who had been taken sick suddenly, although, as the mother afterward informed me, during the afternoon and evening of the previous day it had not been quite well.

As I found the temperature in the rectum above 105°, some drowsiness, and twitching of the muscles, I cautioned the parents as to the possibility of the child's having a convulsion. I prescribed two grains of antifebrin, six grains of potassium bromide, and a tepid bath. Hardly had I left the house before the child had general spasms, which, from all accounts, must have lasted from eight to ten minutes. On my return in a couple of hours the temperature was 106°, partly, no doubt, as a result of the convulsion, and, after putting the child for fifteen minutes in a bath of 96°, rapidly cooled to 95°, the temperature came down to 104°. In less than an hour it had gone up again to 105.4°. During the first two weeks of its illness it received altogether about forty of these tepid baths.

Large doses of quinine and the prolonged baths only reduced the fever for short periods. The child continued in a semi-comatose state for nearly four days, only improving in this respect after its bowels had been thoroughly moved by repeated small doses of calomel. When the cerebral symptoms had disappeared, great irritability came on, manifesting itself by violent attacks of crying and screaming, which persisted for hours at a time. Hyperesthesia, both general and local, was present to such a degree that it was often impossible to feel the child's pulse or take its temperature in the rectum. When the child was to all appearances asleep, the slightest noise or touch would startle and be likely throw it in one of these spells.

Cough, dry and hacking, was present from the first day. There were a few râles, but no dyspnea or changes in the character of the respiration. On the 15th of April, the twentieth day of the fever, some harshness of breathing could be detected over the posterior edges of the left lung. Small moist râles now made their appearance, with a looser cough and a more intermittent range in the temperature. These symptoms, however, came on gradually. After a few days the right lung became correspondingly involved, whilst the left one commenced to clear up. This condition of the lungs was much like that observed in the pneumonias of the aged during the recent epidemic of influenza, only the posterior and lower edges becoming involved, and not whole lobes or circumscribed areas of the organ. The reflexes appeared greatly exaggerated during the latter part of the attack, and a peculiar tremor of the arms and hands was apparent on the slightest exertion. Pronounced ankle-clonus was also present. The child would lie on its back for hours at a time, perfectly quiet, with a peculiar fixed gaze on some object in the room, or else picking at its nose and lips.

It became profoundly emaciated and anemic. Loud systolic murmurs could be distinctly heard over the whole chest. The pulse was weak, and at times irregular in volume, and ranged from 140 to 160. There were no abdominal symptoms or enlarged spleen. There was complete anorexia. The vomiting, which occurred several times, came on only after a few large doses of quinine.

CASE II is that of a child about twenty-three months old. On March 24th, appearing rather indisposed and feverish, its temperature was taken and found to be 103.8°. In the evening it had risen to 104.6°. The parents informed me that during the preceding few days the child had refused its bottle several times, had vomited once or twice, had some cough, and a little discharge of mucus from its nose. These symptoms were ascribed to a slight cold. On the 25th the child appeared much brighter, the temperature not rising above 100° during the whole day. On the 28th, at about 3 A.M., the temperature rose again to 104.8°, declining by evening to 100.2°. On the 26th there was another sudden rise, but after this the fever became distinctly remittent in character.

Cough, the only other symptom present, appeared to increase or decrease in severity with the rise and fall of the temperature. I was in this case unable to make a diagnosis of catarrhal fever before the lapse of several days, bearing in mind at first the possibility of the child's having typhoid fever, the father of the child having just recovered from a prolonged attack of this disease. On April 13th the child was taken to Atlantic City, and on the 16th, after vomiting for several hours, it developed a typical attack of scarlet fever, with the characteristic rash, sore throat, and strawberry tongue. The symptoms previously had been: fever of several weeks' duration, cough, loss of appetite, constipation, irritability.

CASE III.—On March 26th I was called to see I. M., a child twenty-two months old. Its parents had but recently returned from Camden. Mrs. M., the mother, was in the seventh month of pregnancy, and had suffered from diarrhea from the first weeks of gestation, despite assiduous treatment. On March 10th the husband, a man of about thirty, healthy and strong, and by occupation a weaver, was taken sick with a slight attack of influenza, from

which he made good recovery in a few days. On the 13th Mrs. M. took to bed, suffering, she supposed, from a bad cold. She complained of frequent and distressing cough, and became quite feverish. She could retain nothing in her stomach, vomiting all food, both liquids and solids. The diarrhea became worse. On March 16th labor set in, and in a short time she gave birth to a rather small and puny child, which lived but a few hours. She appeared to improve for a couple of days, but soon the vomiting returned, the looseness of the bowels persisted, and she died after a time from exhaustion.

Post-mortem examination confirmed the diagnosis of chronic intestinal ulceration. Both the ileum and the colon were found studded with the deep, punched-out, sloughing ulcers, common in cases of dysentery.

When called to attend this child the symptoms were so much like those present in Cases I and II that I suspected we had to deal with another case of catarrhal continued fever. The fever persisted for over six weeks. Delirium was much more prominent than in the other cases, especially at night. It became necessary to pad the sides of the crib with pillows, in order to prevent the child from injuring itself. Notwithstanding these precautions it received several blows and bruises on the head and face.

The child eventually made a good recovery, although it had some little fever for several weeks. During the whole course of the fever a distressing cough was present, with evidences of slight bronchitis, but the lungs remained clear, so far as could be detected by careful physical examination.

On April 9th, about a month after his first attack of influenza, the father of the child again took to bed with fever and cough. The temperature ranged between 103° and 103.2° for nearly two weeks, slowly returning to normal on or about the sixteenth day. There were no abdominal symptoms, but rather decided constipation. This man remained in bed for about ten days. A diagnosis of catarrhal remittent fever was made.

I also attended a young man, about twenty-four years of age, living a few doors beyond, with much the same symptoms, the fever, however, lasting only fourteen days.

The grandmother of the child whose history I have just given, a woman over sixty-five years of age, had chronic nephritis, with valvular heart-trouble. On March 28th she was obliged to go to bed, feeling, as she said, out of sorts, with slight fever and cough. On the following morning she died rather suddenly, complaining a few minutes before her death of a sense of oppression over the chest and great dyspnea. In this family we had four cases of catarrhal fever, with two deaths.

In order to properly recognize catarrhal continued fever as a distinct disease, we must first take up the fevers that are so very common in children. In attempting their classification we encounter many difficulties, and although they seldom terminate fatally, their careful study and early recognition is a matter of great practical importance. Especially are we impressed with this fact when compelled, during the prevalence of some contagious epidemic disease, such as typhoid or scarlet fever, to make an early and correct differential diagnosis.

The text-books state that the majority of infectious diseases run a mild and irregular course in children, and this is more marked in respect to the fevers, which closely resemble each other during the first few days of their commencement.

All practitioners have seen cases in which it has been practically impossible to make a positive diagnosis before the lapse of several days.

Take, as an example, the difficulties in differentiating between a simple or abortive type of typhoid and one of the numerous symptomatic fevers so common in children, or between a mild case of scarlet fever and an acute attack of tonsillitis, accompanied by high temperature, exudation on the tonsils, vomiting and a general erythematous rash, not an unusual clinical picture in children during the last winter.

It is taught that under the circumstances a delay of two or three days will clear up the diagnosis; but, in the meanwhile, how can we conscientiously insist on the necessary isolation, involving as it does among the poorer classes much inconvenience and expense; or evade the numerous questions so persistently put by the anxious parent or more inquisitive neighbors.

The necessary delay involved in determining the question of contagiousness in a given case is frequently unavoidable, but this remains one of the embarrassing and trying questions in practice.

How often are we obliged to wait for days, anxious and perplexed, before we can make the final differential diagnosis between rubeola and scarlatina. Such has been my experience at least with those cases of German measles that are marked by initial high temperature, vomiting, sore-throat, followed by desquamation and peeling on the extremities.

As evidence that this matter is by no means exaggerated, or that this question is not always easily and satisfactorily dealt with, we point to the surprising number of cases of scarlet fever and diphtheria cured and running about in less than a week, notwithstanding the gravity and large mortality accompanying these diseases in children. Such cases indicate either exceptional ability to cure necessarily grave diseases, or a disinclination to change a previously made incorrect diagnosis.

The majority of the febrile attacks of children may be included under the terms ephemeral fever and febricula—the former when the febrile paroxysm lasts less than thirty-six hours, and the latter when it persists for five, six, or more days. That we have

an abundance of terms, as well as theories, in relation to this subject still in use in our modern textbooks, cannot be denied; but it may be explained by the fact that the proper classification of the fevers of childhood is a question by no means settled in the minds of the profession, many of the terms used in connection with these fevers conveying little or no information—as, for instance, catarrhal and infantile remittent fever; the latter, in fact, having been applied to a variety of different conditions, such as gastritis, enteritis, hepatitis, and even one or two of the essential fevers.

Ephemeral fever, febricula, simple continued fever, irritative, gastric, catarrhal, septic, and infantile remittent fever, also herpetic fever and febris rheumatica of the Germans, synochus or mixed fevers, synocha or inflammatory fever, and functional fever, are some of the terms used by the older writers. Insolation, thermic or heat fever, continued thermic, and the ardent continued fevers of the tropics, are used more in connection with the febrile condition produced by excessive heat.

Classification.		Causes.	Duration.
Symptomatic fevers.	(A) Ephemeral or irritative fever.	Cold, or any source of irritation of an important organ of the body, such as teething, worms in the alimentary tract, serious injuries or fractures; sudden excitement or exhaustion of nerve-centers, as in attacks of hysteria, or extreme mental and bodily fatigue; the passage of bougies through the urethra; the inhalation of poisonous gases.	From 24 to 36 hours.
	(B) Febricula or simple continued fever.	Gastro-intestinal inflammations, indigestion and secondary absorption of leukomaïnes from the alimentary canal; as, for example, the fever produced by the absorption of tyrotoxicon or the ptomaïne found in ice-cream; attacks of biliousness, simple adenitis or lymphadenitis; inflammations of the mesenteric glands or tonsils; muscular rheumatism, and not improbably acute exacerbations in cases of chronic endocarditis.	From 3 to 12 days.
	(C) Thermic fever.	Exposure to intense heat or the direct rays of the sun, and over-exertion in hot weather.	From 3 to 6 days.
Essential fevers.	(A) Malarial remittent fever.	Malarial poison	From 6 to 12 days.
	(B) Catarrhal continued fever.	Influenza poison	Indefinite; at least several weeks.
	(C) Specific fevers.	Abortive types of infectious diseases as observed during epidemics of typhus, typhoid, relapsing fever, measles, variola, and erysipelas; but only likely to occur during or immediately following epidemics.	From 6 to 14 days.

This variety naturally leads to much confusion, and to simplify matters they should first be divided into the two great classes, the symptomatic and essential fevers, rather than to include them all, as is commonly done, under the one head of febricula, the definition of which, according to a recent textbook, is "a fever of short duration depending on a variety of causes." (Osler.)

When called to prescribe for such conditions in children, our first object should be to attempt their classification under one of two heads—that is to say, to satisfy ourselves as to whether we have to deal with a symptomatic fever, caused by some local inflammatory condition, or an essential one, in which the local lesions are secondary to the fever.

I am well aware that it is frequently a most difficult point to determine, if the fever be idiopathic or symptomatic, and the local conditions a cause or effect. Our common excuse for failure in this respect is due to the fact that we are usually called rather late to the case, or only after the secondary local lesions have made their appearance. This difficulty is always greater in children because in them the secondary lesions caused by fever are likely to make their appearance sooner and become more prominent than in adults, no doubt as a result of the greater impressionability, as well as the undeveloped state of the nervous system.

We may still arrive at a correct diagnosis if, notwithstanding the presence of these secondary lesions, we find that the inflammatory conditions are insufficient to account for the degree of pyrexia or the general symptoms in the case.

On the other hand, we should never overlook the possibility of an essential fever in the course of time becoming a symptomatic one, with continued elevation of temperature as a result of the secondary inflammatory lesions that have been set up.

As the symptoms would likely merge imperceptibly into each other, we could not positively recognize the occurrence of this change in the character of the fever, except by constant and systematic examination of the various organs of the body during the course of the disease.

This is what usually takes place in cases of catarrhal continued fever, and it is this that has probably led many physicians to doubt its existence and fail to recognize it as a distinct fever.

Bronchitis being the constant complication, or rather symptom, in most of these cases, we can readily understand how the catarrhal condition of the mucous membrane will in time extend downward, and by continuity invade the pulmonary structure, producing a catarrhal pneumonia, or more correctly speaking, a broncho-pneumonia, the child's vitality being depressed by the prolonged effects of high temperature, and, therefore, placed under the most favorable conditions for the appearance of this complication.

The division of these fevers that I have made may

appear somewhat minute and unnecessary, but I believe that if we studied them according to this plan it would greatly aid us in the matter of their differential diagnosis from the infectious diseases, the only point of any practical importance to us.

The few cases here reported are what I have led myself to believe to be typical examples of essential catarrhal continued fever, met with both in children and in adults, and caused or in some way connected with our recent epidemics of influenza, but a fever quite distinct from its acute or epidemic varieties.

The term catarrhal fever, applied to these cases, is rather inappropriate, for I could never satisfy myself that the catarrhal conditions that were always present accounted for the degree of pyrexia, especially during the first few days of the disease.

Nervous fever, or a fever depending upon some toxine circulating in the blood and affecting the heat-centers, would be more applicable to these cases and would be more likely to explain the prominent symptoms.

Fever, cough, delirium, or hebetude, oftener the latter; decided hyperesthesia, both local and general; loss of appetite and constipation were the most pronounced symptoms observed in children. The fever always ran a course of several weeks' duration, either ending by lysis and ultimate recovery, or becoming indefinitely prolonged by the presence of complications, or when it attacked persons whose vitality was already reduced by some chronic ailment, frequently ending in death.

The diagnosis from the symptomatic fevers was made:

1. From the simple continued fever, or febricula, by the higher range of temperature, its epidemic character and longer duration.

2. From thermic fever, by the presence of laryngeal cough, and the fact that it occurred both in epidemic form and at all seasons of the year, irrespective of temperature or weather.

3. From typhus, or typhoid, fever it might be frequently impossible to differentiate, especially during the presence of these diseases in epidemic form. In the typhoid fever of children, both diarrhea and spots are often wanting. The abdominal symptoms are slight, the fever likely to assume a distinctly remittent type, and, on the whole, running a shorter course than in adults. The spleen is, however, always enlarged; the nervous symptoms are prominent; bronchitis is usually present; epistaxis rarely occurs; and the mortality is low. According to Dr. George B. Wood, there is an extraordinary susceptibility to the action of cathartics in the disease under consideration. The presence of herpetic eruptions on the lips and face is also said to exclude its existence in children.

4. Relapsing fever, by the absence of enlarged spleen or liver, of jaundice and articular pains.

5. From tuberculous meningitis it might be quite a difficult matter, since cases are mentioned in which, notwithstanding the presence of extensive cerebral disorganization, there were no convulsions or evidences of paralysis. On the other hand, its abrupt commencement, and the absence of strabismus, irregularity in the pupils, arrhythmical pulse and respiration, constant and peculiar vomiting, and violent screams, should exclude the existence of meningitis. Only in its more rapid onset and higher range of temperature do the symptoms of acute meningitis differ from those of tuberculous inflammation of the membranes of the brain.

6. From acute general miliary tuberculosis I doubt whether it could be distinguished, except by the usual fatal termination of the latter.

7. From malarial remittent fever, by the absence of chills and sweats, but above all by the careful examination of the blood with a view of determining the presence or absence of Laveran's plasmodium.

8. From yellow fever it would be a difficult matter, especially in countries in which this disease is prevalent all the year around. In fact, Guitéras is authority for the statement that yellow fever in the tropics can only be diagnosticated from the simple continued fevers of children by the fact of the increased mortality from meningitis, dentition, malarial remittent fever, etc., occurring during certain seasons of the year.

9. From central or abortive pneumonias there should be no doubt in the diagnosis after the first few hours.

10. From catarrhal pneumonia, or broncho-pneumonia, by the change in both the character and frequency of respiration, the absence of all abnormal physical signs in the chest denoting catarrhal fever, and a dry cough out of all proportion to the local symptoms. The advent of catarrhal pneumonia is slow and insidious in children, but we should always be able, no matter at what stage of a prolonged fever, to detect its presence by the physical signs, the increased temperature, or its greater remissions during the day and changes in the character of the cough, which would become looser and more frequent.

Of the treatment of catarrhal continued fever there is little to be said. Antipyretics had little or no effect on the course of the fever, and although quinine was given in large doses, both by the mouth and in suppositories, its effects were, on the whole, disappointing. In fact, more reliance was placed on treating hyperpyrexia in these little patients by tepid baths than on the use of internal antipyretics. The baths not only reduced the temperature, but to a certain extent also relieved the great irritability

from which the patients all seemed to suffer. Case I was given $\frac{1}{600}$ of a grain of strychnine four times a day with a pepsin mixture for over three weeks. It was also given a teaspoonful of whiskey every two hours, night and day, for over four weeks.

The treatment, I should say, was purely symptomatic.

CORROSIVE SUBLIMATE AS A GERMICIDE.

BY CHARLES T. McCLINTOCK, A.M.,
OF ANN ARBOR, MICH.

(Continued from page 370.)

KLEIN, in 1884, in reviewing Koch's work, makes the statement that mercuric chloride is of no more germicidal value than vinegar. Actuated by curiosity more than anything else, I made a few experiments on this point. The experiments made are possibly too few to draw any conclusions from, but they are given for what they are worth.

Apr. 12. One c.c. of subtilis culture; fifty c.c. of sublimate, 1 : 1000.
After twenty-two hours (April 15), many colonies had formed; after forty-one hours (April 15), seven colonies had formed.

Apr. 12. One c.c. of subtilis culture; fifty c.c. of a saturated solution of sublimate.
After seventy minutes (April 15), eight colonies had formed.

One c.c. of subtilis culture; fifty c.c. of sublimate, 1 : 100.
After twenty-two hours (April 18), no development had taken place; after forty-one hours (April 18), no development had taken place.

One c.c. of subtilis culture; fifty c.c. of vinegar.
After sixty minutes (April 15), very many colonies had formed; after one and one-half hours (April 15), very many colonies had formed; after twenty-two hours (April 18), many colonies had formed.

One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000.
After twelve hours (April 15), forty-one colonies had formed; after twenty-three hours (April 16), no development had taken place.

One c.c. of aureus culture; fifty c.c. of vinegar.
After twelve hours (April 16), no develop had taken place; after twenty-three hours (April 16), no development had taken place.

The vinegar used in the foregoing experiments was titrated with sodium hydrate, and gave a fraction over 7 per cent. of acetic acid. A different sample of vinegar was obtained and another set of experiments made.

Apr. 30. One c.c. of aureus culture; fifty c.c. of sublimate, 1 : 1000.
After thirteen hours (May 4), thirty-one colonies had formed; after sixteen hours (May 5), very many colonies had formed; after twenty-three hours (May 5), two colonies had formed.

One c.c. of aureus culture; fifty c.c. of vinegar.
After thirteen hours (May 5), six colonies had formed; after sixteen hours (May 5), no development had taken place; after twenty-three hours (May 5), no development had taken place.

One c.c. of subtilis culture; fifty c.c. of sublimate, 1 : 1000.
After twenty-three hours (May 5), no development took place; after thirty-nine hours (May 5), no development took place.

One c.c. of subtilis culture; fifty c.c. of vinegar.
After twenty-three hours (May 5), fifty colonies had formed; after thirty-nine hours (May 5), thirty-five colonies had formed.

This sample of vinegar gave on titration 6.3 per cent. of acetic acid.

Experiments with Eberth's Germ of Typhoid Fever.

The culture from which this germ was grown was one brought by Dr. Vaughan from Koch's laboratory some four years ago. It had, therefore, been grown on artificial media for at least four years, and we may reasonably suppose that its power of resistance to deleterious influence had been weakened by this long exposure to adverse conditions.

Apr. 7. One c.c. of a culture of Eberth's germ; fifty c.c. of sublimate, 1 : 1000.
After six minutes (April 12), two hundred colonies had formed; after ten minutes (April 12), eighty-two colonies had formed; after fifteen minutes (April 12), forty-one colonies had formed; after thirty minutes (April 12), twenty-one had formed; after sixty minutes (April 12), no development had taken place; after three and one-half hours (April 12), no development had taken place.

Control, using water instead of sublimate.
Apr. 12. Innumerable colonies had formed.

The culture used in the foregoing experiments was grown in alkaline bouillon in the incubator for thirty-six hours.

Apr. 19. One c.c. of a culture of the bacillus venenosus;[1] fifty c.c. of sublimate, 1 : 1000.
After thirty minutes (April 23), about four hundred colonies had formed.

In another series of experiments with the typhoid germs a comparison was made between the germs grown in bouillon and those grown on agar. Unfortunately the bouillon-culture was three days old, while the agar-culture was but thirty-six hours old. In the case of the agar-culture a few c.c. of bouillon were poured into the agar-tube and the germ rubbed off the surface with a platinum needle and the whole filtered.

[1] One of Dr. Vaughan's list of typhoid germs.

Apr. 27. One c.c. of a culture of bacillus venenosus; fifty c.c. of sublimate, 1 : 1000.
Bouillon-culture — after thirty minutes (April 30), about three hundred colonies had formed.
Agar-culture—after thirty minutes (April 30), about one hundred and fifty colonies had formed.
Bouillon-culture—after forty-five minutes (April 30), about three hundred colonies had formed.
*Agar-culture—after forty-five minutes (April 30).
Bouillon-culture — after sixty minutes (April 30), about two hundred and fifty colonies had formed.
Agar-culture—after sixty minutes (April 30), no development had taken place.
Agar-culture—after sixty minutes (May 3), five colonies had formed.
*Bouillon-culture—after two hours.
Agar-culture—after two hours (May 3), one colony had formed.

One c.c. of a culture of Eberth's germ; fifty c.c. of sublimate, 1 : 1000.
Bouillon-culture—after thirty minutes, (April 30), thirty-two colonies had formed.
Agar-culture—after thirty minutes (April 30), one colony had formed.
Bouillon-culture—after forty-five minutes (April 30), twenty-six colonies had formed.
*Agar-culture—after forty-five minutes (April 30).
Bouillon-culture — after sixty minutes (April 30), twelve colonies had formed.
Agar-culture—after sixty minutes (May 5), no development had taken place.
*Bouillon-culture—after two hours (May 5).
Agar-culture—after two hours (May 3), no development had taken place.

(Plates marked * were through an oversight destroyed.)

Sublimate solution has not been extensively used for the disinfection of feces, writers on this subject generally stating that the large amounts of albuminous material present tend to delay its germicidal action. In order to see if it was merely a question as to the quantity of albumins present, the following experiments were undertaken.

Apr. 25. A portion of a stool of feces, estimated at one hundred grams, from a healthy individual, was placed in a beaker and one liter of sublimate, 1 : 1000, added. Over the mouth of the beaker was tied a sheet of filter-paper moistened with sublimate. Through this paper was passed a sterilized glass tube plugged with cotton. After twenty-four hours this tube was connected with the hydrogen sulphide generator, and the gas passed for some time. Three plates were then made, one from the liquid and two from the solid portion of the fecal mass.

Apr. 28. Each of the plates contained hundreds of colonies. No attempt was made to determine the species, but judging from the colonies alone, I would say that there were at least four species present.

In another experiment made April 29, I proceeded as in the foregoing, with the exception that the portion of feces taken was estimated at not more than twenty-five grams, to which was added one liter of a saturated solution of sublimate. After twenty-four hours the plates were made as in the previous experiment. The plate made from the liquid did not develop. The two plates from the solid matter each had many colonies.

The amount of hydrochloric acid formed when hydrogen sulphide was passed was doubtless sufficient to kill all germs, if any were living in the liquid.

NOTE.—It will be observed that the experiments given in this paper are not always arranged in chronologic order. In several instances when an experiment bore on a particular point it was placed under that heading, although made at a different time.

The almost universal practice of using sublimate, 1 : 1000, for disinfecting purposes is based on Koch's[1] statement: "By a single application for but a few minutes, without any previous preparation of the objects to be disinfected, an absolute disinfection of even the most resistant organism is guaranteed."

Gärtner and Plagge[2] claim that the staphylococcus pyogenes aureus is killed by sublimate, 1 : 1000, in eight seconds, the proportions of organisms and sublimate being the same as I have used.

Tarnier[3] and Vignal state that it is killed in two minutes.

Abbott[4] credits it with a much higher resistance.

In contrast with these statements my experiments show that, exceptionally at least, the germs withstand the action of sublimate as follows:

Staphylococcus pyogenes aureus; sublimate, 1 : 1000; twenty-three hours.
Staphylococcus pyogenes aureus; sublimate, 1 : 100; eleven hours.
Staphylococcus pyogenes aureus; sublimate, saturated; one hour.
Bacillus subtilis; sublimate, 1 : 1000; forty-one hours.
Bacillus subtilis; sublimate, saturated; eighty-five minutes.
Swine-plague; sublimate, 1 : 200; one hour.
Typhoid germs; sublimate, 1 : 1000; one hour.
Germs in feces; sublimate, 1 : 1000; twenty-four hours.
Germs in feces; sublimate, saturated, twenty-four hours.

It may be urged against the experiments that years of use by surgeons and practitioners have demonstrated that sublimate is a germicide. In reply to this I may cite the fact that the same credence was given to Listerism and the same long experience was urged as confirmatory; and, again to the more

[1] Koch: Mittheilungen aus dem Kaiserlichen Gesundheitsamte, 1881.

[2] Gärtner and Plagge: Verhandlungen der Deutschen Gesellschaft für Chirurgie, vierzehnten Congress, 1885.

[3] Tarnier and Vignal: Arch. de Méd. expérimentale et d'Anatomie pathologique, 1890.

[4] Abbott: "Corrosive Sublimate as a Disinfectant against the Staphylococcus Pyogenes Aureus," Johns Hopkins Hospital Bulletin, April, 1891.

recent practice of aseptic surgery (which was the real secret of success in using both carbolic acid and sublimate), in which the results are better than with any of the antiseptics.

Frommel,[1] with an experience of some two hundred laparotomies, using at various times carbolic acid, sublimate, and asepsis, gives the preference to the last, and his results are practically in accord with all recent surgery.

The resisting power of the tissues to the invasion of germs has not received due attention from writers on antiseptics. Whether the power resides in the leukocytes, blood-serum, or what not, does not matter. Laboratory experience has shown that in order to be sure of infection, with most germs at least, we must introduce relatively large quantities. The fact that a given operation was performed antiseptically and no infection followed, by no means warrants the conclusion that the antiseptic was the cause of the non-infection.

It is to be noticed that in these experiments, the germs were placed under the most disadvantageous conditions, while for the disinfectant the conditions were the most favorable that could be devised—*i. e.*, so far as possible the germs were isolated from each other and distributed throughout a large quantity of the disinfectant. In nature and at the operating-table these conditions do not obtain. Germs are generally found in masses, are contained in albuminous fluids, and hidden or surrounded by such matters as are but slowly permeable by fluids that do not coagulate them; whereas such a fluid as sublimate solution would, in some cases at least, be hours, or possibly days, in reaching the germs contained in pus, blood-clots, feces, etc., and then would require further hours or days to destroy the germs after reaching them. Again, as pointed out by Gruber,[2] solid media, as gelatin and agar, and room-temperatures are not favorable to the growth of bacteria that have been under the influence of disinfectants.

Recognizing as we must, from daily experience in the laboratory, that our artificial media are at best but poor substitutes for the natural media on which germs grow, having in mind that the germs often fail to grow or grow but feebly on such media —with the foregoing facts in mind and yet seeing the experiments show that even under these adverse conditions the germs are still capable of growth after having been in sublimate for hours or even days, we are forced to the conclusion that the *germicidal* power of solutions of sublimate has been enormously overestimated.

[1] Frommel, Review of, in Centralbl. f. Bakteriol. und Parasitenkunde, 1891.

[2] Gruber: "Ueber die Methoden der Prüfung von Disinfektions-mitteln," Centralbl. f. Bakteriologie und Parasitenkunde, Bd. xi, Nos. 3 and 4.

However, the proof that sublimate is not a good germicide is no proof that it may not be valuable as a disinfectant. As is well known, of all substances it has the greatest antiseptic power, and, if my interpretation of its action be correct, it follows that a germ treated with sublimate, and possibly with solutions more dilute than 1 : 1000, unless, perchance it gets into the blood or is exposed to very exceptional conditions, is powerless to grow—that is to say, it is probable that a spore of subtilis or anthrax treated with sublimate, 1 : 1000, and then thrown on the soil or into water will not germinate, owing to the fact that the capsule of sublimate surrounding it is not removed.

The following is a summary of the results of my experiments, and the conclusions that it seems to me they justify:

1. The high rank heretofore given corrosive sublimate as a *germicide* is without warrant and was based on faulty experiments. These faults were in the main two: among the older experimenters, carrying over with the disinfected material enough of the sublimate to act as an antiseptic; in the later experiments, as those of Abbott,[1] the failure to recognize the fact that the organic compound of the sublimate with the investment of the germ, especially with the use of solid media, is sufficient to act as an antiseptic; and from a failure to obtain a growth, the false conclusion is drawn that the germ is dead.

2. The very varying power of resistance in different cultures, as pointed out by Esmarch,[2] and insisted on by Gruber,[3] is an all-important factor to be noted in determining the germicidal value of any agent.

3. That sublimate forms with cellulose, as cloth, filter-paper, etc., with silk, with albuminous bodies, with some part of bacteria, probably the envelop, a chemical compound that cannot be removed by any amount of washing with water. Thus sublimate when acting on a germ, forms a capsule around it that protects the germ for a time from the further action of the sublimate, and, in turn forms an impenetrable barrier to the growth of the organism, unless removed. This barrier may be removed with salines, and is more rapidly removed in proportion to the renewal of the saline, conditions that are fulfilled in the circulating blood. The action of sublimate on bacteria is probably closely analogous to that of alcohol. All experience leads us

[1] Abbott: "Corrosive Sublimate as a Disinfectant against the Staphylococcus Pyogenes Aureus," Johns Hopkins Hospital Bulletin, April, 1891.

[2] Esmarch: "Milzbrandsporen als Test-Objekten bei Prüfung von Disinfektionten," Zeit. f. Hyg., 1889.

[3] Gruber: "Ueber die Methoden der Prüfung von Desinfektions-mitteln," Centralbl. f. Bakteriologie und Parasitenkunde, Bd. xi, Nos. 3 and 4.

to believe that absolute alcohol is immediately fatal to protoplasm, and the only way that we can explain the fact that spores may survive in absolute alcohol for weeks, is on the assumption that the alcohol somehow changes the envelop of the spore, rendering it impermeable.

4. The presence of a gelatinous envelop in many, if not all, bacteria, at certain stages of their life-history has not received the attention it deserves. De Bary[1] insisted on this long ago. Now and then, in staining old cultures of bacilli especially, one may notice a halo or dim line surrounding the organism, generally at a distance about that of the diameter of the organism itself. I have observed this frequently, but cannot state just what the conditions are under which it occurs. Of course, this or something similar must be present in all germs forming zoöglea, as well as in the capsule-forming germs. This envelop probably serves the organism in protecting it against temperature, dehydration, and chemical agents.

(*Note.*—Since writing the foregoing I have reread De Bary's statements as to the envelop of bacteria. He points out that it is generally present, but far more prominent in bacteria grown on solid media, for the reason that being gelatinous, it is largely dissolved in fluids. If this be true, and if my explanation of the action of sublimate be true, it follows that had I used germs grown on solid media the results of the experiments would have been far more unfavorable for the sublimate, and, the foregoing suppositions holding, had the germs been air-dried their resistance to sublimate would have been yet more marked.)

5. That while sublimate has no great germicidal power, it does not follow that it is not a valuable disinfectant. Whether the germs contained in solutions treated with sublimate and disposed of as such material usually is, do or do not grow remains to be proved.

CARCINOMA UTERI IN THE NEGRO.

BY MIDDLETON MICHEL, M.D.,
PROFESSOR OF PHYSIOLOGY AND MEDICAL JURISPRUDENCE IN THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, AT CHARLESTON, S. C.

THE degree of interest now centered upon the negro in his social, political, and racial relations to the white man demands that he shall have his special history clearly established and written. To the medical scientist particularly we look for the supposed racial distinctions that are to individualize him, and to the medical men of the Southern States the expectation of all Europe has doubtless been turned for many years in the hope of a solution of this problem. We must confess, however, that a most neglected department of medical research is very apparent, in which there exists so much uncertainty on the one hand, and such positive misapprehension, on the other, of those demologic features that the negro really presents, and which have been within our reach and directly before us for the past hundred years. Interest in this question, of course, centers in any determinate pathologic or anatomic peculiarity; in any fixed organic difference always to be recognized, classic and distinctive—which thus may become of the greatest moment in all ethnologic inquiries based upon scientific data, not to be discussed as a matter of simple opinion or theory, but to be predicated of incontrovertible facts.

The erroneous statements advanced respecting peculiarities supposed to distinguish the negro from the Caucasian show great neglect of accurate research, considering the facilities presented throughout our Southern States for a rigid inquiry. It is only a few years ago that a case of hare-lip in the negro was presented to a concourse of medical men as an extremely rare occurrence in the true African, and the remark was received unchallenged. Upon investigation, however, this abnormality of development was shown to be far more common in the black than in the white race. With like positiveness carcinoma of the uterus is said to be scarcely ever met with in the negro, while fibroids of the uterus are pronounced to be so common that the dissecting-room seldom furnishes, it has been stated, a perfectly healthy uterus in a female negro subject, or one void of some fibroid growth.

Remarks of this character are constantly made as expressive of personal experience or possible conviction, with no reasonable foundation, and the statement is received, though based upon unreliable statistics, and is heralded again and again by each writer on the subject. Schroeder makes the following statement: "North American authorities agree that negro women, in whom uterine fibroids are singularly common, are very seldom affected by carcinoma uteri, or, indeed, by any form of carcinoma. Thus Whitall, of New York, saw only two cases of malignant disease of the uterus among 2000 colored women treated by him."

Such statistics and such assertions we are compelled to set aside as entirely untrustworthy, because unfortunately incorrect. They have arisen, perhaps, from some preconceived misapprehensions as to certain pathologic principles, as where skepticism obtains as to the associated development of carcinoma of the cervix and fibro-myoma. Believing, forsooth, that the fibroid and carcinomatous diatheses are incompatible, the natural inference would be that where fibromata are so frequent *in utero*, carcinomata must surely be rare. But who is ready to

[1] De Bary: "Vorlesungen über Bakterien," 1886.

affirm that carcinoma and fibroma are antagonistic growths? Who has shown that these conditions are never met conjointly? The entire fundus uteri has been seen occupied by a large fibroid, while the lower segment and entire cervix were invaded by a medullary carcinoma. It may even be questioned whether the corporeal endometrium is always in its normal condition when the cervix is carcinomatous. Besides the presence of fibroids, the mucosa is, perhaps, often infiltrated with round cells. More than once have I recognized small fibrous, degenerated growths throughout the fundus that seemed to have been the real source of the hemorrhages that had so severely harassed and weakened my patient with well-marked carcinoma of the cervix.

Again, is it correct to declare that fibroids are so very common in the black race? Years of experience, now reaching to half a century, in the labors of the dissecting-room and clinical autopsy-hall, entirely, or at least largely, among the negro race of the South, by no means corroborate such statements. We protest against such declarations, for we have not found fibroids of the uterus so frequent—much less a constant condition of the negress's womb.

Now, the exemption of the uterus from carcinoma in Africans was perhaps first particularly insisted on by the late Dr. Fordyce Barker, and J. C. Knott's observations or opinion seemed to sustain the assertion. Indeed, the general consensus of professional opinion seems to exclude the negro in part from uterine carcinoma. But such questions as these, in an empirical science like ours, are not to be determined like matters in politics, by public acclamation of a majority or a minority on one side or another; we have only to pursue the investigation patiently through a series of authentic cases, where opportunities for research are so readily at hand as among us in the South. Connected, as I have been for years, with the Board of Health of Charleston, S. C., which requires a death-certificate from every attending physician, detailing the primary and secondary causes of death, the sex, age, race, and residence, etc., of the deceased, before burial is permitted, I have had ample opportunity of verifying the facts in any doubtful case, by direct inquiry of the physician making the return; and thus having accumulated, from a population of 60,000, evidence sufficient to determine this particular question, I shall simply furnish the record carefully kept on file in this office for the past *fourteen* years, which speaks for itself.

I claim no other merit in this paper but what may be attached to a patient and persevering investigation, throughout the series of years named, of the subject under consideration: results not simply collated from already published statistics, tabulated for public record, but cautiously obtained as they came to hand serially, and often even verified in person at the bedside, sometimes at the autopsy, and always in consultation with the one who made the report, when doubt or difficulty obtained respecting any particular case; I may also say, sometimes even rectifying misstatements in the report while ascertaining the real nature of the disease.

Now, the value of statistics depends upon their accuracy, for which I have given every guarantee; and again upon their multiplication—indefinitely, if possible, whenever we are dealing with simple facts such as bear no relation to cause and effect; for the greater the numerical statement—that is, the more numerously the instances are multiplied, the more certain we are to avoid the accidents of chance, and to escape simple coincidences. We may then rely upon the result in proportion to the absolute increase of such instances as constitute what logicians have termed prerogative facts. To illustrate what I mean, let us suppose one year's result to furnish cases of carcinoma in the whites and none in the blacks. Such an experience would seem to imply at once that the disease does *not* occur among negroes. Continue these statistics a little further. Then the occurrence of a few cases among blacks would now indicate that this race is not wholly exempt. Pursue the research still a few more years, and perhaps the predominance then in the blacks would strangely embarrass our conclusions, and such experiences might continue to recur until frequent repetitions in the progress of the investigation would gradually lessen this conflict of evidence, and progressively reach a more evident and exact result.

The conditions of such a requirement as we have aimed at on this occasion are, perhaps, completely fulfilled in extending these statistics through fourteen consecutive years, especially when associated with statements before me from many correspondents throughout our Southern States, whom I have interrogated on the subject, and whose replies contain many interesting particulars, all tending to prove that, in ratio of the population of the two races in their immediate vicinity, carcinoma uteri obtains as frequently in the one as in the other.

Year.	Whites.	Blacks.	Total
1878	3	5	8
1879	1	2	3
1880	3	3	6
1881	2	2	4
1882	3	2	5
1883	4	2	6
1884	3	4	7
1885	6	7	13
1886	6	6	12
1887	2	1	3
1888	3	2	5
1889	4	3	7
1890	4	5	9
1891	4	9	13
	48	53	101

The reader will observe that the statistics for the fourteen years, from 1878 to 1891, give forty-eight cases among the whites, and fifty-three among the negroes. Estimating the negro population at 36,000, and the white population at 28,000 (which in round numbers is about the ratio of population of the two races in our midst), we have among the whites $1\frac{5}{7}$ cases, and among the negroes $1\frac{3}{7}$ cases to every 1000 of the population—a very slight difference. We would call particular attention to the foregoing table.

We have produced these results in order to prove that carcinoma of the uterus is very nearly as frequent in the negro woman as in the white woman; and we wish to emphasize the statement by the foregoing carefully prepared record, as we are unwilling that it should go forth to the world that the physicians of the Southern States of North America, with ample means of ascertaining the truth in so simple a problem, have in anywise endorsed the oft-repeated assertion of Europeans on this subject.

In announcing that carcinoma is as frequent in the one race as in the other we see no reason why this should have been otherwise. What should so specially immunify the negroes from carcinoma uteri when we are sometimes treating them for carcinoma in other parts of the body? In our clinical instruction and surgical operations before our classes, cases of carcinoma of the eye, of the breast, and of the stomach, kidneys and rectum, present themselves; and it should be remembered that carcinoma more frequently attacks the uterus than any other organ; the breast comes next in order; while the other organs then follow in frequency of invasion. If we look again to the accepted etiology of carcinoma of the womb we should undoubtedly consider the colored people as specially liable to it. When we remember the unbridled licentiousness of this people, their profligacy, the attendant traumatisms about the cervix in women who have borne many children, we surely find conditions that, to say the least, could scarcely be supposed to render the black race exempt.

The study of the malignant tumors and diseases of the cervix and body of the uterus is still surrounded by some difficulty. We have not, therefore, attempted to separate malignant papillary tumors from cancroids, nor these from true carcinomata. We have throughout these inquiries used the term carcinoma in a somewhat generic manner, without drawing distinctions between scirrhus, encephaloid, or epithelioma, and still less between these and colloid, which is but a degenerescence of the former; but considering with some authorities all forms of carcinoma as rebellious conditions, or diseased states of the epithelia, commencing in a soil thick with these initial elements, and therefore most frequently in the cervix, we have here merely referred to that proliferation or hypergenesis of an atypical epithelial neoplasm recognized in a general sense as carcinoma, because sooner or later found to terminate in septicemia and death, and rarely lasting over a year or fifteen months.

HEADACHE DUE TO EYE-STRAIN.[1]

BY WILLIAM C. BANE, M.D.,
OF DENVER, COL.,
LATE LECTURER ON THE DISEASES OF THE EYE AND EAR, IN THE WESTERN PENNSYLVANIA MEDICAL COLLEGE, PITTSBURG, PA.

DURING the past few years the subject of reflex headaches, especially those due to eye-strain, has been studied and discussed by many physicians devoting their time to the diseases of the eye and the nervous system.

Headache from eye-strain is an old and valuable discovery, although it received little or no attention until within the past few years, and even now it is by many considered of small importance.

Headache is a prominent symptom in a large percentage of functional disorders. How prone we are to attribute the ache to some disorder of the digestive system, and proceed to prescribe, omitting to inquire whether the headache develops after using the eyes for close work for an hour or two, and whether there are also some aching of the eyes and, at times, dimness of vision.

Among civilized races the percentage of abnormal or defective eyes is estimated to be from 75 per cent. to 90 per cent. Various investigators have furnished statistics, giving the percentage of emmetropic or normal, and of ametropic or abnormal eyes. In a study of the eyes of 90 medical students, Dr. B. A. Randall,[2] of Philadelphia, found but 12.2 per cent. with emmetropic eyes. Of the 180 eyes 18.8 per cent. were emmetropic. The results of these examinations, made with the eyes under the influence of a mydriatic, are in accord with similar reports made by foreign investigators. Three years later, Dr. Randall,[3] in his "Analysis of the Statistics of the Refraction of the Human Eye," concluded that approximate emmetropia did not exceed 10 per cent.

In reviewing the writings of others on headache due to eye-strain, it seemed to me, as perhaps it does to others, that there has been a disposition on the part of some of our eye-surgeons to give undue prominence to ocular defects as a cause for headache. After an analysis of 300 cases of error of refraction, however, as they appear on my record-books, as a basis upon which to form an opinion, I

[1] Read before the Denver and Arapahoe County Medical Society, May 24, 1892.

[2] Transactions of Pennsylvania State Medical Society, vol. xvii.

[3] Heidelberg Congress, 1888.

am prepared to confirm the views of a number of conscientious observers, that of the entire number with error of refraction, from 55 per cent. to 60 per cent.[1] suffer more or less with headache, the exciting cause being eye-strain.[2]

It has been my rule, in examining persons with errors of refraction, to learn of any eye-ache or headache, especially frontal headache, that existed before wearing glasses, and after correction, to request the patients to report in a few weeks whether or not they had been relieved of the unpleasant symptoms. In preparing the following table I have excluded, with a few exceptions, cases that failed to report, though I am satisfied that many of them obtained, in the correction of their ocular defects, the desired relief:

Form of error.	Males.	Females.	Number of cases.	Number with eye-ache.	Relieved of eye-ache	Partially relieved of eye-ache.	Number with headache.	Relieved of headache.	Partially relieved of headache.	Failed to report.
H.	17	31	48	41	35	5	26	21	5	1
M.	5	5	10	6	4	2	6	6	...	
H. As.	11	39	50	43	33	6	25	19	6	
H ⊃H.As.	16	45	61	45	41	3	29	25	3	2
Mixed As.	9	17	26	23	20	1	18	16	1	3
M. As.	31	30	61	46	41	5	40	34	3	3
M.⊃M.As.	15	29	44	31	28	3	27	21	5	1
Total with As.	...	...	242	188	163	18	139	115	18	9
Total	...	...	300	235	202	25	171	142	23	10
Per cent.	...	...	...	78.3	85.9	...	57	83.	13.4	

A number of reports have been furnished the profession, giving the percentage of cases of headache due to ocular strain, in which statements have been made that correction of the errors gave relief; but few, however, have given the percentage of the cases thus treated that were relieved.

We have learned from the investigations of others that 90 per cent. of the civilized race have defective eyes. I have shown that 57 per cent. of my cases with errors of refraction suffered with headache; also, that 79.8 per cent. of these were relieved by the correction of ocular defects, while 23, or 13.4 per cent., were partially relieved.

From the foregoing facts it is patent that we have in a very large percentage of our race a fruitful source of reflex headache, and that we have it in our power to render the aid to Nature that will relieve a great deal of suffering, not to mention the improvement in vision to be gained by many in the *proper* adjustment of glasses to their eyes. I say proper adjustment of glasses, for, I am sorry to say, a great deal of imperfect refraction-work is done. Physicians are too apt to refer to an optician the patients whom they suspect need glasses. I am informed that the opticians of this city add to the price of their spectacles their charge for the examination, an examination that, owing to their lack of knowledge of the anatomy and physiology of the eye, cannot be perfect. Then, again, persons under thirty-five or forty years of age cannot be properly corrected unless the accommodation is paralyzed. Of the 300 cases reported in my table, 225 were under thirty-six years of age; in all atropine, hyoscyamine, or homatropine was used. In my table I omitted cases in which only prisms were prescribed, but for quite a number of the cases prisms were combined with the correcting-glass, or the spherical were decentered.

Of patients with headache due to eye-strain we cannot say with Ambroise Paré, "I tend him, God cures him."

STEELE BLOCK.

[1] "Statistics and Lessons of Fifteen Hundred Cases of Refraction," by George M. Gould, A.M., M.D., in the Journal of the American Medical Association, vol. xviii, p. 432.

[2] "Analysis of Two Hundred Cases of Errors of Refraction," by H. B. Ellis, B.A., M.D., in the N. Y. Medical Journal, vol. lv, p. 490.

A PLEA FOR THE CONTINUATON OF OUTDOOR SPORTS IN MIDDLE AND ADVANCED LIFE.

BY JOHN GRAHAM, M.D.,
OF PHILADELPHIA.

THE physician's object is not alone to cure; his higher mission is to aim at the prevention of disease. To this latter end he endeavors to destroy or neutralize the germs of disease and their products, and to produce such a condition of bodily health and vigor as will enable the individual to be proof against the entrance of disease. Chief among the means to establish this resistance he recommends outdoor exercise.

With a like object in view our colleges have employed skilled teachers to develop the physical as well as the mental powers, and their successful after-results are seen among our young men and men of middle life, and handsome girls are not ashamed of brown faces and well-developed muscles.

Unfortunately, when college ceases, the exercise ceases, and educated Americans past thirty are wild to see a base-ball match, but seldom think of taking part in the play. The latter is left to paid professionals; and of all who have lapsed in this respect, the doctors lead the van. The words athletic and sport attached to a doctor's name fill him with professional horror, and if perchance he does partake of the forbidden joy, he sneaks away, as if to the commission of a crime.

How different is it with our English cousins. The educated Englishman of middle life, even when he affixes M.D. to his name, is proud to be known

as an athlete, and the English public has learned that a man may be a good physician as well as a good cricketer.

Some years ago a team of amateur English cricketers visited Philadelphia and vanquished a picked eleven of Philadelphians on a Saturday. On the following Sunday the English captain, Rev. ——, preached a first-class sermon in one of our churches. Like instances are numerous in England. How rare in America!

Uneducated to the pleasure and advantages of outdoor sports, the mental laborer, wearied in mind and body, too often turns to cards, chess or billiards—midnight games, with their dangerous associations, loss of sleep, and gambling. Oh, that such a one could feel the keen joy and exhilaration of him who follows a pair of setters in search of quail on a crisp clear day in November.

No one advanced in years can indulge in outdoor sport with skill, pleasure, and benefit, unless he has followed it from youth to manhood and so on through life. Therefore, I would urge our boys to continue their favorite sport, and we should assist them early in life to select one, the pursuit of which will least interfere with their individual life-work.

If the desire exists, the opportunity will generally be found, and the man of sixty, equally with the boy of sixteen, can enjoy his horseback, cricket, or gunning; but the desire, with the physical ability to exercise it, will only exist when fostered from youth and suitably used and not abused.

Many, myself among the number, prefer gunning, and I think it has certain advantages. Its indulgence means early to bed and early to rise. There is no loss of sleep or owl-work in this sport; no confinement in close rooms or vitiated atmospheres; but, far removed from the din and bustle of the great city, in the fields and woods, and with no cover but the sky, and surrounded by pure oxygen—there and there only can this sport be indulged in.

Its surroundings are not such as conduce to intemperance, either in eating or drinking. No *table d'hôte*, imported wines, or Havana cigars are found in the humble abode that generally shelters the gunner, and a whiskey-bedimmed brain but ill fits one who carries in his hand a weapon which, handled carelessly or ignorantly, may deal out death, not to birds, but to the gunner himself, or still worse, to his comrade. Therefore, gunners should be, and generally are, temperate.

Some English experts recently said that American workingmen accomplished as much in two days as their men did in three. In our professional life we pursue the same rush. There is all work and no play. As a consequence, the roadside of life is strewn with the physical wrecks and dead bodies of those who have fallen before they reached full mental development.

The age at which reason and judgment are at their best is nearer fifty than forty years, yet how many physicians wear themselves out in the thirties.

A professional gentleman told me recently that he rested himself by studying geology. Some others in the search for relaxation write on subjects outside their own calling, substituting one form of mental work for another, and claim that it gives them the required rest; but how illogical! What would we think of the bricklayer who for rest would help the carpenter? For true rest, the wearied mind must cease all labor, and better still fly to outdoor exercise.

The phrase "fat and forty," unkindly applied to women, might with equal truth be applied to many of the male sex who lead a mentally active and physically lazy life. With from twenty to forty pounds of extra flesh, which adds but weight to be borne by their soft and flabby muscles; with hearts weakened by muscular atrophy and fatty degeneration; short of breath and always tired; such too often completes the picture of the men who are not and never were lovers of outdoor sport.

Of their opposites I saw a dozen recently at the cricket grounds: Men between thirty-five and fifty years, with spare frames, hard muscles and clear bright eyes, and although engaged in active play, showing no signs of fatigue. Almost without exception these were men who had won success by mental labor, and every one had continued from youth to the present his favorite active exercise.

326 SOUTH FIFTEENTH STREET.

BACTERIA IN BOTTLED WATERS.

BY A. A. GHRISKEY, M.D.,
ASSISTANT IN BACTERIOLOGY, LABORATORY OF HYGIENE, UNIVERSITY OF PENNSYLVANIA.

AT the suggestion of Dr. Billings, Director of the Laboratory, an examination has been made of certain so-called table-waters which are largely sold in bottles and in casks throughout the country, with reference to the microörganisms that they contain. Various brands are being examined, but the results obtained in the case of one of these waters, known as Poland water, seem worthy of publication at the present time, as they indicate a possible source of contamination of such water after it comes into the hands of the retail dealer.

The samples of Poland water examined came from different druggists. In three bottles which, according to the labels, had been filled and corked directly at the spring, the number of bacteria found was 300 to the cubic centimeter, which is not a larger number than good potable water usually contains. These organisms were of two kinds: one, a mould,

not identified, the other a motile bacillus resembling in some respects the typhoid-bacillus of Eberth, but readily differentiated from it by culture-methods.

In two samples of the same water that had been obtained from the spring in large vessels and transferred to soda-water tanks, in order that the water might be sold by the glass from the fountain, there had been contamination. One of these contained 6000 and the other 57,000 bacteria to the cubic centimeter; and in the flocculent sediment in the eight-ounce bottles in which the specimens were obtained, were found various forms of ameba, of flagellate protozoa, of radiolaria, and of one form of algæ.

It would seem probable, therefore, that this water had been mixed with some less pure water in its transfer to the tanks from which it was drawn for sale; but it is very possible that this may have resulted, not from a deliberate mixture, but from washing out the tanks with an impure water.

In these days of general doubt and suspicion of water-supplies, it is desirable that the man who buys a bottled water, in order to avoid possible risks of typhoid or of cholera, should be able to have some assurance that he is really getting what he supposes he is paying for.

A bacteriologic examination of any water is only trustworthy when it is made at the source, or with special precautions as to sterilized vessels, cold storage, etc., if the water is to be carried for some distance before examination, because the bacteria multiply rapidly at first in the bottled water and then largely die out, leaving, however, their products behind them.

Bacteria in bottled or cask waters are not necessarily derived from the spring itself. They may be introduced in the process of cleansing the vessels, or from the persons of those engaged in filling them; and, hence, a very serious responsibility rests upon those who furnish such waters from the spring, and still more upon those who handle it for sale in such a way as to mix with it even a few drops of other water.

ORIGINAL LECTURE.

ANGIO-FIBROMA OF THE NOSE—RACHITIS—MORTON'S PAINFUL AFFECTION OF THE FOOT—TUMOR OF THE ABDOMINAL WALL.

A Clinical Lecture
Delivered at the Buffalo General Hospital.

By ROSWELL PARK, A.M., M.D.,
PROFESSOR OF SURGERY IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF BUFFALO.

ANGIO-FIBROMA OF THE NOSE.

This patient is a woman of forty-six years, who presents a peculiar and interesting condition of the nose. She tells me that even when a little girl there was a red spot at the tip of her nose, but rather on the left side. The area of redness and vascular development and the size of the nose have gradually increased with each pregnancy (she has had seven children) during the latter months of gestation. This is not unusual in the history of new-growths of any kind occurring in pregnant women.

If it were not for the conspicuous, red color, the enormous size and distorted shape of the nose, the growth would scarcely occasion any inconvenience, for it is not painful, except at one tender point at the outside where there may have been a little ulceration or where a nerve may have become involved in the new-formed tissue. The nose is perfectly soft and mobile, and the history and the present appearance eliminate at once all suspicion of malignancy.

At first sight, the diagnosis of rhino-scleroma suggested itself. This is a rare disease, so rare indeed in this country that I have seldom said much to you about it, since I have not had the opportunity of showing you a case. In this disease there is sometimes an enormous enlargement of the nose, but not characterized by the dilated and tortuous vessels seen in this case. It is due to infection by a specific bacillus that seems to find its habitat just in this location. It makes an awkward and disfiguring enlargement at the end of the nose.

This case is not one of rhino-scleroma, for the growth is too vascular, and the history gives us every reason to regard it as congenital, although it has enlarged much during adult age. Some of the vessels are arterial, some venous. On inspection, the inside of the nostrils presents the same reddened and vascular appearance as is seen without.

The case was undoubtedly originally one of nevus or angioma, and, because of the vascularity and increased amount of nutrition carried to the part, there has been a hypertrophy, or, more strictly speaking, a hyperplasia

of the surrounding tissue, so that the resulting tumor is mixed, consisting partly of vascular and partly of fibrous elements, and it might properly be spoken of as an angio-fibroma. The trouble corresponds quite closely with what on the extremity of the body would be called elephantiasis. This part of the nose is peculiarly constituted, consisting of cartilage and fibrous tissue, and the skin is less mobile than over most other parts of the body. It scarcely finds its exact counterpart, except in the lobe of the ear. Vascular growths in either of these localities often lead to redundant growth of fibrous tissue in addition. The tumor is innocent; it is simply an annoyance. There is no danger to be apprehended from it, except that, as the patient says it bleeds occasionally, there might be a very copious hemorrhage from the accidental rupture of one of the larger superficial vessels.

I have told the patient that, if she chooses to undergo the operation, the superficial vessels may be obliterated and a V-shaped piece can be removed from the redundant portion, and the nose can be reduced to quite normal proportions. It will not look as if no such growth as this had ever disfigured it, but the appearance will be greatly improved. Galvanism might be used to obliterate the vessels, but hardly to cause absorption of the redundant fibrous tissue. With the patient's consent, the operation will be undertaken for purely cosmetic purposes.

The only thing that I ought to be particular not to sacrifice is the cartilaginous portion of the nose. I can take away as much as is necessary of everything else. A V-shaped incision is made with the apex over the middle of the bridge of the nose and the arms running down so as to remove a considerable portion of the left ala nasi, which is larger than the right. There is considerable hemorrhage, which is checked by pressure-forceps. The bleeding-points here are not the openings of bloodvessels in the ordinary sense of the word, but are more like blood-channels. Only a few of the bleeding-points require ligation after the removal of the hemostats. The wound is closed by a longitudinal row of catgut and fine silk sutures extending up the middle line of the nose. The more vascular left lateral and alar portion of the tumor I shall endeavor to reduce still more by applying the thermo-cautery inside the nostril. So much hemorrhage follows this procedure that it is necessary to plug the nostril with iodoform-gauze. Several rapid linear strokes are made with the cautery externally, so as to dispose of the more prominent superficial vessels.

[The patient was shown at a subsequent clinic with a nose of almost normal appearance.]

RACHITIS.

This baby is ten months old. I want you to notice that the head is flat, that each tibia is slightly curved, though not as much as is often the case in rickety children. As I pass my hand over the ribs I find a slight enlargement at the costo-chondral junction, the so-called rachitic rosary; it is not especially marked in this case. The mother had not enough milk to nurse the child, and that is probably the reason why it is rachitic. The child's bowels are described as being continually loose; it does not sleep well at night, but rubs its head in the pillow and it sweats a good deal on the forehead. Notice that I have elicited this information from the mother without asking leading questions. The average patient, if asked a direct question, will usually answer in the affirmative, but you can generally rely on the mother to notice carefully the baby's condition, and to give a correct history of the case without too close inquiry. The fontanels are still open, late closure of the fontanels being characteristic of rachitis. There is a very prominent backward curvature in the lower dorsal portion of the spinal column; this is not due to Pott's disease but to rachitis, for with such a degree of deformity in Pott's disease the child would not be sitting up and as active as it is. I have seen children with tuberculous spondylitis and curvature no more marked than in this case, in which there was almost complete paralysis of the lower limbs from pressure on the spinal cord.

As far as the back is concerned, some artificial support would be a good thing, for in all probability the condition is aggravated by allowing the child to sit up too much. If the child is kept on its back in the crib, no external support will be needed. It would be a pity to put this little child in a plaster-of-Paris jacket, for the baby is developing rapidly and the dressing would have to be changed often. A jacket of felt would be more convenient and more comfortable. With reference to the general treatment of rachitis, you have so lately listened to a didactic lecture on the subject that I need say nothing further here.

MORTON'S PAINFUL AFFECTION OF THE FEET.

The next patient presents a condition that is not generally recognized by the profession, and which, to the best of my recollection, has not gotten into the text-books, although journal articles upon it have appeared. I refer to a peculiar painful affection of the foot, and especially of the fourth toe, generally known as Morton's, because Dr. T. G. Morton, of Philadelphia, was the first to call attention to it, and to show how it could be cured.

The patient is a girl, twenty or twenty-two years old, who is slight in build and not of robust appearance, who has so suffered for ten years that she has almost been confined to the house. She has so much pain and tenderness of the feet that whenever she walks more than a few rods her feet hurt her so much that she wants to stop and rest, or even lie down. Lateral compression of the toes causes great pain, but there is no red or tender spot, the tenderness being so deep-seated that she finds it difficult to describe and locate it exactly. When I ask her which toe is the most painful, she points to the fourth. The condition is present alike in both feet. I see such a case every now and then, and just to illustrate how coincidences occur in actual practice, let me tell you that there was a lady in my office this morning from a town only ten miles from this girl's home, who came to consult me about a carcinoma of the breast, but who complained also of sciatica, which, on questioning and examination, proved to be a trouble of this kind.

The secret of this trouble, as Morton has told us in his paper, is the entanglement of a little terminal branch of a nerve between the heads of the third and fourth metatarsal bones. Any pressure upon the nerve-fibril gives the same kind of pain that arises in a diseased tooth. In fact, many patients will speak of this as a

toothache in the toe. I have known a lady who, at the dinner-table or in the theater, would be suddenly seized with this excruciating pain, and would make any excuse to get down and pull off her shoe. You will see on the skeleton that the fourth metatarsal bone is just enough shorter than the third for the head of the former to be almost apposed to the neck of the latter, and it is at this point that the entanglement of the nerve occurs. The operation devised by Morton consists in removing the head of the fourth metatarsal bone, and I have never known the operation to fail to give relief. In this particular case, the girl has had the trouble so long that now the sensations are more diffuse, but the history of pain beginning in the toe, gradually increasing and spreading up the foot and leg, is typical of Morton's disease.

The feet were soaked for some time yesterday afternoon and again this morning in an antiseptic foot-bath, and, as you see, have been wrapped in antiseptic compresses. The operation is not a serious one, but I want to have the parts heal by first intention, just as much as if it were a more dangerous condition. I will apply the Esmarch bandage, in order to control the hemorrhage. The incision may be made either from above or from below. In this case, I choose the dorsal aspect. The only point of caution is to avoid the tendon. After making the incision and exposing the head of the metatarsal bone, it is removed with cutting-forceps. The wound is plugged with antiseptic gauze, while the operation is repeated on the other foot. The wounds are closed and dressed antiseptically in the usual way.

TUMOR OF THE ABDOMINAL WALL.

Our next case is one that I saw yesterday without making an exact diagnosis, and I do not know that I can do so without the aid of the microscope. The patient is a woman of thirty-six years, who gives a history of having been scratched in the side by a broken corset steel some ten or twelve years ago, and having had develop, as the result, this tumor of the abdominal wall. The long duration precludes a diagnosis of carcinoma. The tumor is movable, it is breaking down, and it presents a gummatous appearance, but there is no other indication of syphilis, and I waver in diagnosis between syphilitic and tuberculous gumma, and a degenerating tumor of the abdominal wall. It may be that before I have completed the operation I can give you a more accurate diagnosis. Whatever diagnosis is made, the tumor must be excised, and the probability is that it will be necessary for me to go through the whole thickness of the abdominal wall and perhaps into the peritoneal cavity. Fibroma is the most common neoplasm of the abdominal wall. It occurs sometimes at a distance from the navel, sometimes near by, sometimes right at the navel. I had occasion last fall to operate on a man who was sent to me from out of town with a diagnosis of umbilical hernia. I found no such condition, but, instead, a pouting mass at the umbilicus, ulcerating on its surface, and evidently a solid tumor of some sort. I removed the mass, going down to and including the peritoneum. On microscopic examination the growth was seen to be mostly composed of fibrous tissue, but some of it was proliferating rapidly and bordered on the sarcomatous condition. It may be that this is something of the same sort.

This neoplasm evidently has included all of the tissues down to the peritoneum, which I open just to be sure that it is free. The elliptical defect made by its removal is easily closed by deep sutures of silkworm-gut. The tumor itself is a somewhat inflamed and degenerating fibroma. Possibly the microscope will reveal in it some sarcomatous elements.

CLINICAL MEMORANDA.

A CASE OF DIPHTHERIA IN WHICH THE MEMBRANE PERSISTED FOR A LONG TIME, WITH NEPHRITIS AS A SEQUENCE.

By J. A. HAWKINS, M.D.,
of Avalon, Pa.

The case herewith reported is of interest on account of the duration of the disease, as well as of the way in which the sequel manifested itself.

Walter W., ten years old, presented a good family and personal history. He was the eldest of six children, all of whom were living when the patient was taken ill. On June 3d I was called, and found the boy with a temperature of 102° F. The pulse was 98, and pretty strong. He complained of headache, malaise, and slight sore-throat. On inspection I found the tonsils enlarged, congested, and of a dark-red color, the right being the more swollen. No membrane could be seen. The glands of the neck were slightly enlarged. I told the parents to put the boy to bed in an isolated room. He was given six grains of calomel at once, and tincture of the chloride of iron, ♏vijss in sufficient glycerin to make a dram, every two hours, without any water for fifteen minutes after each dose.

I saw the boy again on the following morning. The temperature and the pulse were about the same as on the preceding day. There was also a spot of membrane, as large as the nail of the little finger and raised at least half a line. This I succeeded in stripping off with forceps, leaving a bleeding surface. I immediately directed the administration of mercuric chloride, $\frac{1}{30}$ grain, every two hours, in addition to the tincture of iron, which was continued as before, except that it was given in a wineglassful of cold water. The throat was swabbed every hour with a solution of mercuric chloride, ½ grain to 4 ounces of water, the swab used being of cotton and being thrown away.

This treatment was kept up for about six days, and still the membrane spread. It involved the nasopharynx, travelled on to the uvula and soft palate, along both cheeks, completely lining the buccal cavities, and thence to the under-surface of the tongue. At this time a sister was taken ill with the same disease. She was well in the course of two weeks. As the boy's heart began to weaken, he was given half an ounce of whiskey every two hours. At no time did he present any symptoms of mercurial intoxication, but at about this time he refused to take the iron. To show him the bottle would make him "boke," as the family designated the gagging. I then directed five drops of the iron to be given in half a tumbler of water, but still it was vomited. The addition of some lemon-juice failed to help matters. The whiskey also came up; and port wine was tried, but with no better results.

I attributed the vomiting to an overdose of eggnog, on which he was largely fed alternately with beef-essence. The boy now refused egg in any form, as well as milk, but craved for bean-soup, which was given him.

Things went on in this way for fully two weeks more, oil of eucalyptus and carbolic acid in glycerin and water being substituted as a swab. The mercuric chloride had been withdrawn on the tenth day, and, as the boy could not be gotten to take iron or whiskey, he was given tincture of digitalis, three and a half drops every two hours, and oil of eucalyptus (leaves), two drops every four or five hours. The eucalyptus was given not only as an antiseptic, but also as a deodorant, for the patient's breath was simply horrible. I have come to the conclusion that the fetor of diphtheria, like that of carcinoma uteri, is characteristic of the disease.

The membrane now began to disappear, not to return. Previously it would return a few hours after having been removed. In the course of the next three days, all had disappeared, except a thin film on the right tonsil. The right side of the throat and the right cervical glands were the most involved throughout the course of the disease.

The boy was now allowed to sit up, and in a few days he was walking around, although he still could not eat.

I now tried a fifteen-volume solution of hydrogen dioxide as a swab, and succeeded in removing the last spot of membrane, just about four weeks from the commencement of the disease.

The urine examined during the four weeks in which the membrane was present had a specific gravity of from 1.010 to 1.012, gradually reaching the norm in the last week. Albumin was present during three weeks.

The urine in the case of the boy's sister maintained a specific gravity of from 1.004 to 1.006 for six days, but presented no trace of albumin, as tested for by heat and nitric and picric acids.

Two weeks after the boy was around, he again began vomiting. I tested his urine once, and found no albumin. Bismuth, calomel, carbolic acid, and ice were all tried with no results. The vomiting persisted for two weeks, during which time he was nourished by enemata of peptonized milk and whiskey.

Dr. J. Chris. Lange, of Pittsburg, suggested that I again examine the urine, and, if not of sufficient quantity (not less than one pint per day) and containing albumin, that I give him diuretics, and also try calomel again in one-eighth-grain doses.

On examination his urine was as follows: It was found that the boy was passing about one and a quarter pints of urine in twenty-four hours. The secretion was of an acid reaction, had a specific gravity of 1.016, and contained albumin. An eighth of a grain of calomel was now administered every three hours. At least two of every three doses were rejected. Seven and a half grains each of potassium citrate and potassium bitartrate, in a half-glass of cold water, were given every two hours. These also were rejected. The quantity of urine continued to grow less, and for three days the child passed on an average only six ounces per day. His heart became weaker. His stomach seemed unable to retain any fluid. To satisfy his thirst he received ice-cream. He was then given the diuretics already named in but little water. The urine now began to be excreted more freely, and, after a sound sleep, of four hours, the boy awoke and asked for a dish of sliced tomatoes. Instructions had been given to permit him to have anything he specially desired, as it was thought that he could not live without eating, for only that morning his bowel became irritable and refused to retain the enema. He next asked for fried potatoes and onions. He received that day four sliced tomatoes, each as large as a ten-year-old boy's fist, four dessert-saucers of fried potatoes and onions, and nine ounces of ice-cream. In the night the child was expected to die. His pulse was 140, and the heart became irregular, and had lost its first sound. It seemed a question of life or death, and I gave him a hypodermatic injection of $\frac{1}{100}$ grain of atropine sulphate. In half an hour his pulse became stronger, and I left three more atropine tablets, of which one was to be taken every five hours. On the following day the dietary of the previous day was repeated; in addition, the boy ate one-fourth of an apple-pie. During the night he had another weak spell, which yielded to the treatment previously employed. Since then he has been steadily improving, although he is still so weak that he cannot bear his own weight on his legs.

The boy is now taking: Reduced iron, one grain; arsenious acid, one-fiftieth of a grain; strychnine sulphate, one-sixtieth of a grain, after each meal, in addition to quinine sulphate, one grain, before each meal.

On the fifth day of the disease the patient presented an urticarial eruption closely resembling that of measles. It commenced on the feet, and spread, in two days, all over the body. It left in the same order as it came.

This case was the first of seven in one family, all of the others of which recovered in from eight days to two weeks, except one girl, four years old, who died on the sixth day, from diphtheritic poisoning, the nose being completely filled with membrane.

GASTRIC ULCER IN A CHILD TWO AND A HALF YEARS OLD.

BY JAMES F. E. COLGAN, A.M., M.D.,
CLINICAL ASSISTANT, ORTHOPEDIC DEPARTMENT, JEFFERSON MEDICAL COLLEGE HOSPITAL.

ON May 26, 1892, at 8 P.M., I was called to attend L. H., two and a half years old, who was said to be suffering with spasms. The temperature was 106°; the pulse about 150, rather full and tense; the breathing was stertorous; and all of the voluntary muscles of the body were in active contraction. There were also involuntary evacuations from the bladder and rectum.

The history I obtained from the parents was as follows: The child had been perfectly well until 11 o'clock that morning, when she came in from the street, saying she did not feel well. There was no vomiting, and no complaint of pain. The mother had examined the stools for worms, but had failed to find any. The first dentition had been passed. The child did not eat anything, and lay on a lounge until I was called. The convulsions were readily controlled, and consciousness, which had been lost from the beginning of the attack, was beginning to return when another convulsion occurred, apparently limited to the diaphragm, and terminating fatally at 12 o'clock.

At the autopsy I was greatly surprised to find a per-

forating ulcer of the stomach. The high temperature had led me to suspect either beginning scarlatina or meningitis. Against meningitis was the entire absence of pain of any kind; there was no headache, no fretfulness—in fact, no symptom indicative of intra-cranial disease. Against scarlatina was the absence of eruption and sore-throat.

Convulsions in childhood are due to many causes, but in this case I could find nothing to account for them until the autopsy disclosed the existence of a gastric ulcer.

In looking over the literature of the subject I find that several of the text-books on diseases of children do not even refer to gastric ulcer—an indication of its great rarity in young children. In Keating's *Cyclopedia of the Diseases of Children* fourteen cases are mentioned, of which only five were in children under three years of age. The great majority occurred in strumous or anemic subjects.

In the case here reported the child was well nourished—in fact, the parents stated that for the last year everything it ate appeared to be converted into flesh.

Different observers have located ulcers in different parts of the stomach. In this case the ulcer was on the posterior wall, at the cardiac extremity, close to the greater curvature. In some places there was an entire loss of substance, the floor of the ulcer being made up only of peritoneum. There was thickening of other parts of the stomach, especially on the anterior wall, extending to the lesser curvature.

Various causes have been assigned for ulcer of the stomach, such as malnutrition due to altered states of the blood; anemia; chronic congestion, as in chronic gastritis. Ulceration may also follow diseases of the left side of the heart in the course of which the branches of the gastric artery become plugged with emboli.

The cause of the ulcer in the case here reported was likely chronic gastric catarrh. The stomach was thickened in several places; the mucous membrane appeared also to be swollen. The child had, no doubt, been allowed to eat everything that it wished. A gastric catarrh developed, which, becoming chronic, was eventually followed by ulceration and perforation, with resulting peritonitis, to which must be ascribed the convulsions and death.

What surprised me greatly was the entire absence of suggestive symptoms; vomiting might have been present and not have been noticed; but the entire absence of pain, the age of the child, and its condition, were not calculated to suggest the existence of ulceration of the stomach.

A CASE OF MALFORMATION OF THE HEART.

By J. W. WILLIAMS, M.D.,
of Paterson, N. J.

On July 18, 1892, H. S., a boy ten months old, was brought for treatment to the Out-patient Department of the Paterson General Hospital, where he was seen by Dr. J. R. Merrill and myself. The child's mother, a healthy woman, stated that when the child was born its respiration was so long delayed that its life was despaired of. She also stated that ever since its birth the child had had attacks of dyspnea and partial syncope, attended with marked cyanosis, coming on so suddenly and being of such short duration that she had never summoned a physician. These attacks had been often repeated at varying intervals.

On examination, the child was found to be fairly well nourished, rather fretful and apprehensive. There was marked cyanosis of the nose and adjacent parts of the face and of all four extremities. Elsewhere the skin was pale and dull in hue. Examination of the chest showed the breathing to be somewhat accelerated. The cardiac impulse was rather forcible and diffuse, so that the apex-beat could not be accurately located. The action of the heart was rapid but regular. No distinct murmur could be heard, the only peculiarity noted in the heart-sounds being a sharp "click" heard before the systole. The diagnosis of a patent foramen ovale was made and an appropriate prognosis given.

The child died August 28th. An autopsy was made, and the following abnormal conditions were found: The heart was in the right side of the chest, with the apex in the right mammary line on a level with the sixth rib. There were two auricles, but only one ventricle. There was no pulmonary artery. The other large vessels were quite normal. The foramen ovale was patent. The wall of the single ventricle was about one-eighth of an inch thick and almost uniform throughout. A slight trace of the septum between the ventricles could be seen.

MEDICAL PROGRESS.

Cholera in the Dog.—At a meeting of the Société de Biologie, Gamaleia (*Münchener medicin. Wochenschr.*, No. 33, p. 595) reported that by treating dogs, which are among the most susceptible of animals to cholera, with intravenous injections of cultures of cholera-bacilli rendered virulent by growth on calf's-foot bouillon or by passing through the pleura or peritoneum of rabbits and guinea-pigs, he had succeeded in reproducing in them manifestations analogous to those observed in persons having Asiatic cholera: bloody or rice-water stools, obstinate vomiting and death in convulsions. Post-mortem, the mucous membrane as well as the contents of the digestive canal appeared sanguinolent; the epithelium was degenerated. Immunity was early manifest in those animals that received doses just short of lethal.

Abdominal Pregnancy.—Sutugin (*Zeitschr. f. Geburts. u. Gynäkol.*, xxiv, 1, p. 9) reports two cases of abdominal pregnancy and presents the following summary. Although retro-uterine abdominal pregnancy is usually early interrupted, with the formation of an hematocele, it may, though rarely, progress to a normal termination, with the complete development of the product of conception. It at first pursues the same course as an intra-uterine gestation; the symptoms of compression of the abdominal contents appear earlier than in other varieties of ectopic pregnancy. If the placenta be situated upon the retro-uterine fold of the peritoneum, there occur severe sacral and pelvic pains and derangement of the secretion of urine. Diagnostically, in addition to the usual uncertain signs of pregnancy, an elastic retro-uterine tumor may be detected, while the uterus is enlarged and displaced forward. In the second half of pregnancy, an irregularly round, cystic tumor may be

palpable, together with the fetal parts. The displaced uterus occupies a position above and in front of the tumor. If the fetus be living, the cardiac sounds may be distinctly heard. It has not been possible to detect the placental souffle. As a rule, contractions of the uterus are not detectable, but their occurrence, in the presence of other signs of ectopic pregnancy, does not exclude the latter. A valuable sign of abdominal pregnancy is the narrowing of the vaginal canal by a firmly elastic, more or less compressible tumor, yielding the sensation conveyed by placental tissue, although pulsation may be entirely wanting in the vaginal vaults. The vagina appears to be elongated and the vaginal portion high and beyond reach. The enlargement of the uterus, as determined by the sound, does not preclude the existence of abdominal pregnancy. The treatment will be governed by the period of the pregnancy and the condition of the fetus. In case of rupture of the gestation sac, with hemorrhage, timely, not late opening of the posterior cul-de-sac; in case of a living fetus or after its death, laparotomy, with complete enucleation of the gestation cyst in case the fetus have long been dead, is indicated. The method of operation will depend upon the anatomic relations.

A Micrococcus in the Blood of Cases of Typhus Fever.—LEWASCHEW (*Deutsche medicin. Wochenschr.*, 1892, No. 34, p. 766) records the results of observations upon a large number of cases of typhus fever in which careful examinations of the blood (removed from the spleen and from the finger) were made. In all, with the aid of high powers of the microscope, a coccus, from 0.2 to 0.5 μ in diameter, was found, which developed in pure culture in 1 or 1½ per cent. of serum-agar prepared with ascites fluid. The organisms usually appeared singly, but sometimes in pairs and but rarely in chains. They are provided with ciliary processes and are capable of active movement. Although the organisms failed to grow at the ordinary temperature of the room, they retained their vitality for a long time, together with the capability of development at a subsequent time. They grew best at the temperature of the human body. The cilia could be demonstrated by treating cover-glass preparations with 2 or 3 per cent. solutions of osmic acid.

THERAPEUTIC NOTES.

The Treatment of Hepatic Colic.—COLADON (*Wiener medicin. Presse*, No. 33, p. 1330) describes among the prodromes of an attack of hepatic colic a peculiar drowsiness; general lassitude, notwithstanding sound sleep; irregularity of pulse, especially at the temples; a false sense of hunger; a sense of emptiness in the epigastrium or distinct nausea; a sense of contraction of the esophagus; eructations and polyuria. Then follow a sense of pressure in the hypochondrium, abdominal distention and tenderness in the region of the gall-bladder. During this stage treatment should be expectant; purgatives and emetics do harm. Absolute mental and physical rest are to be recommended, together with a restricted diet. When the attack has set in, subcutaneous injections of morphine, particularly at first, are to be avoided, on account of the danger of causing impaction of the calculus. Inhalation of chloroform, short of complete anesthesia, will serve to mitigate the intensity of the pain without diminishing the contractility of the biliary passages. The application of a hot-water bag to the epigastrium and another to the back, is also a useful measure. As the attack is coming to an end, purgatives are to be given, for the purpose of carrying the calculi out of the intestinal canal. Cholagogues find an indication here, of which ox-gall and podophyllin are to be preferred. Podophyllin is to be given in small doses for several days. To prevent the recurrence of an attack, the best measure is a careful regulation of the diet. Cold douches upon the right hypochondrium are useful. Massage of the hypochondrium is an important mechanical prophylactic measure, and may be practised by the patient daily, morning and evening, for fifteen minutes.

The Treatment of Chloro-anemia by Means of Hot-air Baths.—TRAUGOTT (*Wiener medicin. Presse*, No. 33, p. 1332) reports the successful treatment of fifteen cases of chloro-anemia by means of hot-air baths. In all, a rapid and considerable increase in the percentage of hemoglobin, as well as in the specific gravity of the blood and in the number of red corpuscles, was observed; the irritability of the heart, the anemic murmurs, the febrile attacks, and the neuralgic pains grew less; the appetite returned; the bodily weight increased; menstruation was resumed; and all of the symptoms gradually subsided. In spite of the profuse perspiration, and although the quantity of fluids taken was not increased, diuresis was augmented. In one of the cases the good effect of the treatment appeared to be enhanced by an extraction of blood. In individual cases from nineteen to forty-two baths were required. The length of the stay in the hospital varied from thirty-three to eighty-four days. The baths were given by surrounding the bed of the patient with barrel-hoops, over which was suspended oil-cloth, while the patient was well wrapped except about the head. At the foot of the bed was placed a wooden box lined with zinc, in which several spirit-lamps were made to burn. The temperature of the first bath may be as high as 131°, of the subsequent baths from 140° to 152°. In the course of the bath an ice-bag is kept applied to the head.

For Catarrhal Jaundice.—NIECCI recommends the following prescription in the treatment of catarrhal jaundice:

℞.—Argenti nitratis . . . . gr. j.
Aquæ destillat. . . . . f℥vj.—M.
S. Take a tablespoonful three or four times a day.
Deutsche med. Wock.

For Chronic Bronchitis.—
℞.—Picis liquid. pur. . . . gr. xx.
Pulv. ipecac. et opii . . . gr. xxx.
Pulv. benzoin. q. s. ut ft. pil. no. xxv.
S. Take one four times daily.
FERRAND, in *L'Union Méd.*

For Subacute Rheumatism —
℞.—Potassii iodidi . . . . . ℥iv.
Potassii bitartrat. . . . . ℥j.
Liq. potassii citratis . . . ℥vj.—M.
S. Shake well, and take two teaspoonfuls three times a day in considerable water, or in lemonade.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will upon publication be liberally paid for, or 250 reprints will be furnished instead of payment. When necessary to elucidate the text, illustrations will be provided without cost to the author.

Address the Editor: GEO. M. GOULD, M.D.,
1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, including Postage in North America.

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SATURDAY, OCTOBER 8, 1892.

AGAIN, THE FOURTH YEAR.

THE Boston *Medical and Surgical Journal* (September 1, 1892) editorially contends that THE MEDICAL NEWS misrepresents the status of chemical teaching at Harvard and other first-class medical colleges, and that the experience of Harvard, after twenty-one years of the three-years graded course and terms of more than eight months each, has demonstrated the necessity of a fourth term, "not as a preparatory year, but as a final year;" this, notwithstanding that "many of its students . . . possess a considerable knowledge of chemistry and physics at the date of admission, . . . and all, with or without degrees, who do not possess a considerable knowledge of chemistry on admission have been given an elaborate course in this subject early in their medical study." "Reform is needed," adds our cotemporary, "not only at the foundation, but throughout the structure up to the very roof, even to its ridge-pole." To which we say, Amen; but *begin* at the foundation, or the base will not bear the heavier superstructure that it is desired to erect.

For those who voluntarily spend four years, or many more, in study and preparation for the practice of medicine THE MEDICAL NEWS has only admiration and praise; and it is well that there should be schools like Harvard to insist not only upon the nine months term and adequate scientific preparation, but also upon the clinical finishing year. Nevertheless, THE NEWS believes that in fixing a *minimum* course of study (and no one pretends to fix a maximum) it would be well for all schools to try the long term, recitations, and adequate preliminary qualification, before deciding that the fourth year is an inevitable necessity. The three-years course cannot be said to have had a fair trial, if all these things have not been done; while even in Harvard, cheerfully granting all that our esteemed cotemporary has to say in behalf of that justly-famed school, the admission of certain highly qualified men to the studies of the second year seems to us a virtual assumption of the same position as that of THE NEWS, and what seems to THE NEWS the position of PROVOST PEPPER. We would have all medical students thus qualified in science, though not necessarily so in arts—that is the whole difference between our position and that of our cotemporary.

It may be—and we should be glad to believe—that we were too critical in our estimate of the ability of the average American medical student to comprehend biologic chemistry, which alone it should be necessary to teach in medical schools. Our cotemporary admits that even at Harvard "an elaborate chemical course"—which certainly takes time—is necessary "early in the medical study" of a large proportion of students. Certainly if we had said that "in few medical colleges in the United States, even among those of the first rank, and despite the learning, zeal, and ability of the teachers, is it possible for the student to begin to learn from the outset of his medical studies the advanced chemistry that ought to be taught him, and without which he cannot understand either physiology, pathology or therapeutics," the expression would have been mild in comparison with facts known to us. It would be invidious to single out special schools to which our remarks did not apply. The catalogue of Harvard, to which our cotemporary alludes, shows the excellent beginning and satisfactory progress there made, and the official reports of every other school will, or should, show its standing in the matter. It is, therefore, impossible for us, even did we so wish, to do injustice to any school. The subject of the fourth term is an important one; for schools not adopting it are liable to be subjected to undeserved reproach by those not familiar with all the facts. We trust, however, to be excused from further discussion of the subject at this time.

A METHOD OF INSTRUCTING THE PEOPLE AS TO PATENT MEDICINES, ETC.

FOR a long time we have been interested in the persistent and manly fight of DR. W. B. CLARKE, of Indianapolis, Ind., against the patent-medicine men and in his efforts to give the people sound instruction in medical and hygienic matters. He uses the secular press, and how he has been able to get his articles into the newspapers is difficult to see, because, as is well known, the syndicates of patent-medicine manufacturers (estimated to draw from the American people about $25,000,000 yearly) are quick to punish newspaper or druggist that is not their obedient tool.

After DR. CLARKE, *The Independent*, of Indianapolis, deserves great credit for its bravery. When necessary to avoid the charge of cowardly anonymity DR. CLARKE signs his articles; but often does not do so, and in any case there seems to be no reason for suspicion of self-advertising. For a year or more, every week has seen the fight kept up, and, one after another, the frauds are exposed; the analyses of the common secret remedies are published, and in plain and simple language, adapted to the commonest comprehension; the people are thus instructed as to the dangers, trickeries, wastefulness, and uselessness of these vile concoctions. S. S. S., Warner, Ayer, Recamier, R. R. R., Mrs. Winslow, Hubbard, Pinkham, Gold Cures, and all the rest, are exposed and shown up with merciless courage and tireless zeal.

A noteworthy fact is that DR. CLARKE is a sincere homeopathist and secretary of the Indiana Institute of Homeopathy. The crusade, however, is not made an offensive means of homeopathic propagandism, and, in view of the better work done, an occasional sacrifice to the inherited and official superstition may readily be excused. If homeopathy would but take up such work, or indeed any work but the worship of the fetich and the most bigoted hatred of "bigoted allopathy," it would stand a much better chance of "downing" the enemy. The instance alluded to is almost the only one we have ever known in which every public and scientific duty was not forgotten in laudation and glittering generalities of praise of *Hahnemann* or homeopathic puerilities. DR. CLARKE, moreover, seems capable of teaching his brother faddists that passion, personal abuse, and financial fines are not the right or manly ways of answering an opponent's arguments. It is the blind zealot's method of hiding from himself the falsity and narrowness of his own belief. We sincerely wish that they were teachable and that he would undertake the task of instruction.

We set out, however, to urge upon philanthropic physicians the recognition of a public duty and an excellent means of carrying it out. Nearly every physician has some friend connected with the secular press, who may be influenced to admit articles to his journal tending to instruct the common newspaper reader in medical and hygienic affairs, and especially endeavoring to make headway against the ignoble traffic in human health and lives that is kept up by the patent-medicine disgrace. A law should be passed forcing all manufacturers to publish the formula and method of preparation of every medicine offered for sale—that is, copyright should be done away with, and the medicine, not the name, be patented.

In our opinion, not even a patent should be allowed on the manufacture, since all scientific discovery in medicine is made by men for public use and without reward. It goes without saying that no ignorant maker of a secret preparation has discovered or sought to discover any drug or combination of drugs of any use to humanity. Why should the law protect these reckless parasites? For the sake of argument, however, allowing the righteousness of patenting the medicine and assuring the discoverer the sole right to manufacture his discovery, there is nothing but the basest injustice, wrong, and harlequin nonsense in allowing a tradesman to patent the name and keep from the public the constituents of a preparation advertised as of inestimable service to human life and health.

Not only should we try to instruct and liberalize the editors, but we should furnish them with scientific and trustworthy articles on the common medical evils of the day, after the manner of DR. CLARKE. The danger of the "newspaper doctor" seizing upon this plan and making it subserve his advertising purposes is, to be sure, a possible and even probable danger; but this scheming scapegrace is always at such work, and no power of law or principle of honor can effect any change in his vicious deviltry. His professional superiors, and even the public, are "up to" his dodges, and have learned to distinguish between motives of self-seeking and those that have the public welfare in view.

TAKE MORE TIME.

Before medical science had become so broad that division and subdivision were necessary, cursory examination of a patient yielded all the information required by the physician to form a conclusion as to the nature of the ailment; but diseases of individual organs and their relations to and effects upon other organs and the whole body have been so widely and closely investigated that the examination that a few years ago would have satisfied is to-day inadequate.

Positivism in diagnosis is becoming rarer as conditions are more closely studied. The advance of medicine as a science has been not inconsiderably retarded by the failure of physicians to give close, careful, untiring study, regardless of time, to the morbid conditions of their patients.

When fewer physicians existed in ratio to the population, their services were required by more numerous sick, and casual observation and examination sufficed. That many serious and some fatal oversights resulted from such methods will not be denied by many scientific men. Have these methods been abandoned by the profession as a whole? Unfortunately, no.

We are all sorely tempted each day to commit sins of omission in examination, because of want of time. Other patients are waiting and are growing restless. Our presence is demanded at this or that hour, here or there, in the country or city. Distractions press from without and harass from within. This patient's blood *ought* to be examined, but we presume that it is not far from normal anyway, so we let it go. We have carefully gone over many points of history and examination, yet here is a symptom that is not fully explained. We have not time to examine the rectum to-day; perhaps at another time we will.

There are several prominent reasons for careless work. Among these a large number of patients and low fees are first to be considered, while afterward come the many engagements and calls upon time outside of professional work. The family physician has to deal with more acute minor ailments than difficult chronic diseases, and he learns to dispatch his visit quickly, knowing that with some simple symptomatic treatment Nature will restore the patient to health. But scientific medicine demands a disregard of time while we are examining patients.

Especially must the first examination of a patient be thorough and complete. Nothing ought to be inferred. Conclusions should be reached only after our fullest resources have been exhausted. When a man studies the whole by careful investigation of all its parts he gains an understanding that cannot come in any other way.

The complaint has often been made of late that too many physicians are being graduated—and that is true—while the mass of practising physicians daily slight their work, make twenty or more calls in a morning, and allow year to fold upon year without contributing one item of interest or value to the science of medicine. When, however, all physicians set out to do scientific work in connection with every patient falling under their care, the number of physicians will be found not in such great excess; they will all have a moderate number of patients, with plenty of work; and individual charges will necessarily be higher.

In investigating a case nothing must be taken for granted that is not demonstrable by the most advanced methods of diagnosis. Many men have, or could soon acquire, the skill to make more careful examinations; but they do not and will not give the time, and time is absolutely necessary. We cannot dispense with that, argue as we may.

REVIEW.

Human Monstrosities. By Barton Cooke Hirst M. D., and George A. Piersol, M. D. Part III. Philadelphia: Lea Brothers & Co., 1892.

Part III of this exquisite piece of scientific and artistic book-making comprises nine of the beautiful plates, with the artistic merits of which the reader has already become familiar, and thirty-four illustrations incorporated in thirty-seven pages of text. The continuation of the subject of single monsters begins with the cyclocephalus or cyclops, the five varieties of which, ethmocephalus, cebocephalus, rhinocephalus, cyclocephalus proper, and stomocephalus, as given by G. Saint-Hilaire, represent different degrees of the deformity or of the attendant abnormality of the face. In the interests of an exaggerated systematization, Saint-Hilaire undoubtedly increased unnecessarily the nomenclature, and our authors properly adopt the simpler and more rational system of Ahlfeld, in which eight degrees of a common defect are described as merging into each other by imperceptible gradations and intermediate stages, so that any sharply-cut boundaries or typical characteristics are impossible, and any rigid nomenclature based upon such supposed classes is recognized as unscientific. There is an excellent and clear *résumé* of the special causes and results of the varying degrees of the ocular fusion in cyclopean abnormalism, which will be of especial interest to ophthalmologists, and which we regret a want of space

required to epitomize. The etiology given is that of Dareste (*Ann. d' Oculistique*, 1891, pp. 171–182).

Of octocephalus, jawless monsters with fused ears, and synopsia, caused by arrested development of the lower processes of the first branchial arches, Hilaire's divisions are five — sphenocephalus, otocephalus, edocephalus, opocephalus, and triocephalus. With this class ends the consideration of autosites, that is, embryos capable of an independent existence in the womb.

The next order, omphalosites, are those embryos or fetuses dependent upon another embryo or fetus for their blood-supply. German writers especially have given this group the name of Acardiacus, because of the usual lack of heart; but as Ahlfeld collected the records of fourteen cases in which the heart was present in some degree, the term Omphalosite seems preferable. Hilaire's divisions are paracephalus, with three sub-groups, paracephalus proper, omacephalus, and hemiacephalus, representing different degrees of cephalic defect, with the four extremities developed more or less imperfectly; acephalus, absence of head and usually of the upper extremities, has three subordinate classes, the acephalus proper, the peracephalus, and the mylacephalus; the anideus, in which the parasite is a shapeless mass of flesh covered by skin; and another class not recognized by Hilaire, of the trunkless omphalosites or the asomata, so rarely occurring that but one specimen is mentioned in the *Index Medicus* in thirteen years.

Composite, compound or double, monsters are those last described. Förster's classification is adopted, including diprosopus or double-faced monsters (iniodymus, opodymus, or heteroprosopus), with six sub-groupings—diophthalmus, two-eyed; distomus, two-mouthed; triophthalmus, three-eyed; tetrophthalmus, four-eyed; triotus, three-eared; and tetrotus, four-eared—in which there are varying degrees of fusion of the two heads, eyes, and ears.

SOCIETY PROCEEDINGS.

AMERICAN GYNECOLOGICAL SOCIETY.

Seventeenth Annual Meeting, held in Brooklyn, September 20th, 21st and 22d.

FIRST DAY.

DR. CHARLES JEWETT, of Brooklyn, delivered the Address of Welcome.

The first paper presented was one by DR. CHAUNCEY D. PALMER, of Cincinnati, entitled "Periodic Intermenstrual Pain." He stated that within the last twelve years he had seen, and had under his care for months at a time, five or six pronounced cases of periodic intermenstrual pain. A certain time following menstruation, generally about the middle of the intermenstrual period, there had been attacks of pelvic pain, located in either ovarian region, sometimes on one, sometimes on the opposite side. These pains varied in severity and duration, were usually short, usually intermittent, came on at night as well as during the day, continued from two to nine days, were uninfluenced by bodily movement, were unattended by febrile phenomena.

The conclusions arrived at were: That periodic inter-menstrual pain is a comparatively rare disease; that the disease is ovarian, not uterine; that it is an oöphoritis or peri-oöphoritis, or both; that the chief underlying exciting cause of the attacks of pain is the morbid obstruction to the extrusion of the contents of the Graafian follicles; that many other morbid conditions (uterine, peri-uterine or ovarian) may be associated with the oöphoritis, but their presence is not the cause of the essential symptoms; that cure is to be effected only by overcoming the disease of the ovary or by extirpating the organ.

DR. WILLIAM H. BAKER, of Boston, expressed agreement with Dr. Palmer that the cause of the pains was generally of ovarian origin. He had found besides, that in a few of these cases, upon the removal of the uterine appendages, the thickened and cord-like condition of the tube, which could be detected before the operation, was verified upon removal. In some of the cases benefit was obtained by local extraction of blood from the uterus by means of leeches. In a number of cases it was necessary to remove the ovaries.

DR. JOSEPH TABER JOHNSON, of Washington, expressed his certainty that in some cases of the disease the ovaries should be removed. All other means should, however, first be tried, and have failed, before the removal of the appendages is attempted. Among the agents that should first be tried he recommended electricity. In only one instance had he resorted to total extirpation for the condition, and the relief was instantaneous.

DR. HENRY C. COE, of New York, emphasized the necessity of localizing the pain, and determining whether it be ovarian, tubal, uterine, or simply due to general depression of the nervous system. He expressed the belief that in the class of cases referred to in the paper the pain was a complex one, and that it was not due purely to intra-ovarian trouble, because in many of the cases the tubes were to be found enlarged, thickened, and possibly adherent, accompanied by evidences of peri-oöphoritis, and the pain due to peri-oöphoritis or localized peritonitis is of a different character. This pain, which occurs at the inter-menstrual period, has not the same neuralgic element as is found in the pain that is most likely to be called forth by the menstrual congestion.

Dr. Coe referred to one instance in which the patient suffered much pain. When the ovary was removed it was found to contain a nodule, which at first appeared to be osseous, but on examination under the microscope proved to be a calcified Graafian vesicle. Evidently in this case, and in some of the cases under discussion, the pain was due to pressure.

DR. S. C. GORDON, of Portland, Maine, related a case of inter-menstrual pain, in which other means, tried during a course of three years by various physicians, had failed. He removed the ovary, and found it hard and cord-like, and the patient was relieved of her symptoms.

DR. MATTHEW D. MANN, of Buffalo, referred to two cases recently under his care, which were greatly relieved by galvanism.

DR. H. P. C. WILSON, of Baltimore, expressed the view that in some instances the pain is due to the remaining congestion in the ovaries after the uterus had ceased to pour out the menstrual blood, and he suggested

that relief could, perhaps, be obtained by depleting the uterus.

DR. A. PALMER DUDLEY, of New York, related that he had found rectal touch the best means of making a diagnosis, the bowels having been previously thoroughly cleansed. By care in passing the finger high enough into the rectum to touch the ovary, the examiner will be able to determine whether or not the organ is tender to touch, without the necessity of an anesthetic. Dr. Dudley stated that in some cases in which he formerly removed the ovaries he now excised the cyst, and sutured the cut parts. Nine cases had been thus operated on for the relief of intermenstrual pain. Of these cases some had afterward become pregnant.

DR. W. H. WATHEN, of Louisville, read a paper entitled "Complications During and After the Operation in a Few Recent Cases of Abdominal and Pelvic Surgery." In one case in which the diagnosis was difficult, and pelvic abscess was suspected, the omentum was found thick, with signs of extensive chronic peritonitis, firm adhesions, and a cyst in the broad ligament, which had not only unfolded the layers of the broad ligament, but had stripped the peritoneum from the posterior pelvic wall to a point above the sigmoid flexure of the colon, separating the layers of the meso-colon, so that the mesenteric surface of the bowel was attached to the thin cyst-wall. The bowel could be traced on the anterior surface of the tumor, over the right side. The uterus was enlarged to three times its normal size, with its peritoneal covering partly separated, exposing the muscular coat. The patient made an uninterrupted recovery.

In a second case, that of a woman who had had pain and pressure in the region of the uterus for six months, exudates were felt, larger than oranges, on both sides of the organ. Exploratory laparotomy was performed, when a band of omentum nearly as wide and thick as the hand was found attached to the right broad ligament in the region to which the severe pain had been referred. The band was ligated in two places and divided. The enlarged uterus and the exudates in the broad ligament were united in one solid malignant mass. The uterine mass had insinuated itself under the sigmoid flexure. The patient has since had no pain or fever, but the ultimate result is necessarily fatal.

A third case presented extensive adhesions from peritonitis, probably caused by a fall some time previously.

A fourth case proved to be one of extra-peritoneal abscess in the right inguinal region, of appendiceal origin, although the appendix could not be found. The patient recovered.

In a fifth case, in which the uterus was extirpated for malignant disease, the nurse, for some unknown reason, during convalescence, gave a vaginal injection of mercuric chloride, 1 : 2000, which penetrated the peritoneal cavity, notwithstanding which, however, the patient recovered.

DR. WILLIAM T. LUSK, of New York, presented a specimen of a lithopedion, and also one of a fibroid tumor that very much resembled the lithopedion. The patient from whom the fibroid was removed was considered as an example of extra-uterine pregnancy. On examination intra-uterine pregnancy was found, together with a movable body in the abdomen which felt like a fetus. An exploratory incision confirmed the diagnosis. The growth, which proved to be a fibroma, was attached to the pregnant uterus by a long pedicle. The pedicle was excised, the margins of the incision sutured, and the peritoneum drawn over. The patient made an uninterrupted and rapid recovery, and subsequently gave birth to a child.

The second specimen was obtained from a patient who three years previously had had an attack of peritonitis, following which there had been more or less tympanitic distention of the abdomen, colicky pains, and pain on the right side. A cyst was found adherent to the right side of and extending behind the uterus, and evidently embracing the intestine. On opening the abdomen a lithopedion was found, perfectly free, but attached to the peritoneum; its sac was calcareous and friable, and contained a considerable amount of fluid; a large part of the membranes was also calcareous. Considerable time was required in the removal of the formation, but the patient made an excellent recovery. After the operation it was learned that twelve years previously the patient had presented all the signs of pregnancy, in which she had gone on two months and then had a flow; from that time she had suffered from sick stomach and violent pains, sometimes with an intermission of two or three days, and then a recurrence. At the seventh month she had violent hemorrhage and then labor-pains, and believing herself in labor sent for a physician who examined her, said she was in labor and watched her twenty-four hours, but the baby did not arrive. Then the pain subsided, and the physician thought she would go on until the next month, and then have her baby, but the child never came.

DR. MATTHEW D. MANN, of Buffalo, related two cases of lithopedia. In one case all the symptoms of extra-uterine pregnancy had been present eight years previously. The case was diagnosticated as one of extra-uterine pregnancy and operation was advised. The patient refused, went on till full term and presented all the evidences of labor; but the symptoms subsided and the woman made a good recovery. She lost her husband, but married again a year afterward, and had three children, all the time carrying this large mass in her abdomen. The woman presented herself recently, passing feces by the bladder. On operating, a large sac was found, to which the intestines were firmly adherent and which contained the fetus. There were two openings in the intestine, one in the large and one in the small intestine, and also one in the bladder. These were all closed. The patient recovered without a bad symptom, although there was stone in the bladder—probably from some remains in that organ. The fetus had been in its sac for thirteen years. The peculiar and interesting feature in this case was that the uterus was a uterus bicornis, or double uterus, and that the pregnancy was not extra-uterine; the child occupied one horn of the uterus, which had no means of getting rid of its contents.

The second case was diagnosticated as one of extra-uterine pregnancy. Labor pains set in, but subsided. The sac was opened, a perfectly formed fetus removed, as fresh as if it had not been dead over twenty-four hours, although the woman had been carrying it for a number of years.

DR. HENRY C. COE, of New York, read a paper entitled "The Elective Cesarean Section—The Most Favorable Time for Operation." He related that of 67 cases operated on by the method of Sänger during the last decade, with a maternal mortality of 40 per cent., 18 have been contributed by nine Fellows of this Society, with a mortality of 33⅓ per cent., 4 of the 6 fatal cases being particularly unfavorable, while in 1 death was due to puerperal mania, and could not be referred to the operation. Ten operations have been reported since 1889, and all have been practically elective, *i. e.*, performed as a substitute for embryotomy, and all were successful.

From an experience of two cases, Dr. Coe entirely agreed with the position taken by Harris, that, other things being equal, the chances of success are increased rather than diminished by operating *before* the commencement of labor. The one case occurred in a primipara, twenty-two years old, four feet six inches in height, rachitic and with marked kypho-scoliosis. The conjugata vera was estimated at less than three and a half inches, with lateral obliquity of the pelvis. It being estimated that the patient was within a few days of full term, the operation was performed without waiting for the beginning of labor. The placenta was directly in the line of the uterine incision, which was made after the uterus had been lifted out of the body, and a rubber cord applied. Little blood was lost, the uterus contracting firmly as soon as it was emptied; the cervix was sufficiently dilated to insure drainage. No fluid entered the peritoneal cavity. The child was vigorous; the mother made a good recovery and is well to-day; the infant lived a year and died of some acute disorder.

The second case occurred in a multipara, thirty-seven years old, who presented a growing fibroma originating from the lower uterine segment, and compressing the right ureter and causing hydro-nephrosis. Celiotomy was performed and an unsuccessful attempt was made to remove the tumor, which was extra-peritoneal and inaccessible from above. The patient recovered from the operation and subsequently became pregnant. In the eighth month the tumor had so increased in size that there was a space of only two inches left for the passage of the fetus. The cervix was high up, on a level with the upper border of the symphysis, and could barely be reached with the finger-tip; the general condition was good; the child was well developed. Dr. Coe operated fifteen days before the estimated date of confinement, and found marked hydramnios, and the placenta situated anteriorly. The uterus contracted well, and no more blood was lost than usual. The cervix was patulous. The child was vigorous; no fluid entered the peritoneal cavity; the patient made a good recovery. Two months after the operation both mother and child were perfectly well.

Six other cases have been reported by American surgeons in which the operation was performed *before* labor, with five recoveries, the fatal case being a most unfavorable one of carcinoma of the cervix.

Dr. Coe maintained that the two essentials to success are early operation and perfect technique, which are intimately related to each other, so that in securing the one the other is secured also.

DR. ROBERT P. HARRIS, of Philadelphia, presented a paper on "The Remarkable Results of Antiseptic Symphysiotomy," in which he carefully traced the history of this operation. In the year 1778 the operation was performed in eleven cases, while from 1841 to 1858 it was performed in a like number. From July, 1858, to February, 1865, it is impossible to find the record of any case of symphysiotomy in the world.

According to a report made by Prof. Morisani in 1886, eight women and five children were lost in eighteen operations. Since that report was issued forty women have been delivered by thirteen operators, with the death of only one woman (from metro-peritonitis, probably puerperal). Six of these women endured two operations each with entire success; and 35 of the 40 children were saved. Of the other five one was stillborn, two were fatally asphyxiated (1 was a forceps delivery), a fourth lived twelve hours after delivery by version, and the fifth died on the third day of meningeal hemorrhage, having also been delivered by version.

The forceps was used to deliver in 27 cases, and version was performed in 5.

As the fetus is to be delivered *per vias naturales*, great care must be taken to get a proper measure of the sacro-pubic diameter of the pelvis and to determine if a normal condition of the sacro-iliac symphyses exists. The operation is not practicable in a Robert or Naegele pelvis, or in one with coxalgic ankylosis, or if there is carcinoma of the cervix uteri, or in cases in which the cervix will not dilate, in obstructions of the pelvis by exostoses, cervical and sacral tumors, and other forms of abnormal growths.

As compared with craniotomy, in cases in which the size of the pelvis is sufficient to admit of a safe delivery to the mother after the fetal head is perforated, symphysiotomy offers a good alternative, as is well shown by the case of Prof. Freund, of Strassburg, who performed the operation and delivered a woman who had a rachitic pelvis with a conjugate diameter of 100 millimeters (4 inches) and a true conjugate of about 3¼ inches. The fetus, arrested at the superior strait, was delivered in fifteen minutes by the vertex with manual assistance after the pubes had been opened by the knife. The child was a male, having a bi-parietal diameter of 4⅝ inches. It lived, and the mother made a good recovery in thirty days. Many cases of craniotomy have no doubt been performed in the past under such circumstances as these in order to save the mother, in which both the child and the mother could have been saved if symphysiotomy had been performed.

Dr. Harris contrasted the three incisive methods of delivery in cases of contracted pelvis. At the present time the "improved Cesarean section" would undoubtedly occupy the first position in the estimation of obstetric surgeons, and if it could be performed early enough the mortality might be reduced to a very low rate.

The Porro-Cesarean operation in general practice upon rachitic women has a larger mortality, and many object to its mutilating effects.

Symphysiotomy is specially antagonistic to craniotomy, and its low mortality renders it an inviting and simple substitute for the latter.

The method of performing the operation is as follows: The following instruments should be thoroughly steril-

ized before the operation: a scalpel, Galbiati's probe-pointed, sickle-shaped bistoury, some hemostatic forceps, a needle-holder and needles, a catheter, ligature-silk, gauze, and cotton. The woman is placed on her back at the side of the bed, with her knees drawn up and separated. The mons veneris and the labia majora are to be shaved and the supra-pubic region, the vulva, perineum, and vulvo-vaginal canal disinfected. The depth, thickness, and direction of the symphysis are to be examined, and the fissure in its superior edge which marks the point of union of the two pubic bones searched out. Then the inferior margin and the anterior and posterior faces of the bones are to be examined.

A female catheter is introduced and placed in the hand of an assistant, that he may depress the urethra from the pubic region and at the same time carry it to the right side to save it from injury. A vertical incision is to be made through the skin and fat above the pubes, about 2¾ or 3 inches in length, terminating about ¾ of an inch above the symphysis, cutting the tissues gently and passing in a line toward the left of the clitoris, so as not to injure it. The length of the incision must depend on the thickness of the fat to be cut through. The recti muscles are to be detached for a short distance from their attachment to the two ossa pubes, the left index finger is to be introduced into the opening and the retro-pubic tissue separated. The palmar surface of the finger is then to be directly applied against the posterior aspect of the symphysis, and hooked in the inferior margin of the articulation, while the assistant attends to the catheter as stated. The operator then introduces the Galbiati bistoury and hooks it around the articulation, cutting the inter-osseous ligaments and cartilage, from within outward, and from below upward. The completion of the section will be known by a creaking sensation and a separation of the bones of from 1¼ to 1½ inches.

After this step the wound is covered with gauze dipped in a bichloride solution of 1 : 4000, and the delivery of the fetus attended to, the separation of the innominate bones being at the same time antagonized by pressure with the hands of assistants. During the passage of the head the amount of pubic separation should be ascertained, the vagina sprayed, and when the placenta is delivered six or eight interrupted silk sutures should be introduced into the edges of the wound, which is dressed with sublimated cotton, 1 : 2000, and a bandage applied to the pelvis and lower extremities.

Dr. Wm. T. Lusk, of New York, stated that although he had had a horror of the operation of craniotomy on the living child, still he had felt that, in view of the greater danger of Cesarean section, it was his duty to allow the woman and her friends to elect which procedure should be resorted to.

Dr. H. J. Garrigues, of New York, stated that in 1881 he had sent for Galbiati's knife, with a view to making use of it, but he had not done so through fear that the mother would be left lame after the performance of symphysiotomy. He regards craniotomy upon the living child as justifiable under certain conditions. If symphysiotomy can be done with thorough antisepsis it may take the place of craniotomy upon the living child.

Dr. Edward Reynolds, of Boston, expressed the opinion that if symphysiotomy is so successful upon European subjects it ought to be even more so in American women, in whom the anterior-posterior diameter is usually greater, and therefore would permit of greater separation of the pubic bones.

Dr. Wm. H. Parish, of Philadelphia, presented a paper on "Celiotomy after Labor." He stated that an abscess in the pelvic connective tissue, or within the tube or ovary, or pus encysted in the peritoneal cavity, must be evacuated early, usually with the knife. While the necessity for early surgical interference is well recognized by experienced operators, not infrequently the physician fails to appreciate the emergency, and the operator is oftentimes called at a time when complications have already arisen that render an operation extremely dangerous. There is still a widespread belief among many of those not engaged in the performance of abdominal operations that when suppuration occurs after labor the pus is usually in the pelvic connective tissue, and that it is best to wait for fluctuation or bulging in the vagina before attempting to evacuate. The pelvic connective tissue is undoubtedly not the usual site of suppuration, and such a delay renders the later removal of pus through the abdominal wall fraught with increased danger. When pus exists within the pelvic cellular tissues, its evacuation is usually effected per vaginam or above Poupart's ligament, externally to the peritoneum, but in some cases a median celiotomy may be indicated as an aid in ascertaining the location of the pus, when other diagnostic measures point to the existence of suppuration, but do not indicate its location.

Emphasis was placed upon the fact, which has been indisputably established by modern surgery, of the relatively great infrequency, even after labor, of suppuration within the pelvic connective tissue. When this fact is accepted by the profession at large a closer watch will be kept for the appearance of suppuration at other points, as in the tube or ovary, and the danger of delaying the operation will not arise so frequently. Ovarian cystoma, hydro-salpinx, hemato-salpinx, and pyo-salpinx do not render pregnancy impossible. Labor sometimes establishes a localized or general peritonitis, and if the symptoms do not promptly subside there exists an absolute indication for celiotomy, removal of the offending mass, and irrigation, but in some cases the evidences of infection may be merely transitory, and operation may be safely deferred. The operation must, however, be performed after labor if infection occurs.

That total extirpation or vaginal hysterectomy is not always necessary in case of puerperal uterine abscess was demonstrated by the case of a woman in whom symptoms of mild sepsis supervened on the fourth day. The uterus was nearly median in position and not very movable. To the right and above was what appeared to be an exudate about a tubal abscess close to the uterus. On abdominal section, both appendages were found free from pus. The uterus presented a bilobed appearance, the right lobe being doughy to the touch and of a dark purplish color. Puncture of this lobe gave exit to two ounces of pus, and revealed an irregular abscess-cavity that did not communicate with the uterine cavity. Two semi-eliptical incisions were made into the uterine tissue, and a wedge-shaped portion of the uterus was removed without reaching the uterine cavity. Numerous lymphatics about the abscess contained pus.

The lips of the uterine wound were sutured with silk sutures. Two abscesses were discovered in the intestines that had been adherent; they were in the lymphatic glands in the sigmoid meso-colon. They were evacuated and sutured, and after thorough irrigation the abdomen was closed. The patient made a good recovery.

In another case, one of plastic peritonitis, in which the amount of pus encysted was so large that the medical attendant thought it was ascites, the removal of three gallons of pus, irrigation, and drainage, were followed by excellent recovery.

Diffused suppurative peritonitis rapidly terminates fatally. The pus formed is limited in quantity, is diffused over the peritoneum, though most abundant in the pelvic regions, presents the streptococcus in greatest abundance, and is most virulent in character. During the progress of plastic peritonitis celiotomy is rarely indicated unless pus is present. Plastic peritonitis may occur without the existence of abscess, when it is usually limited, and tends to recovery under proper non-operative treatment.

In the severe cases of diffused septic suppurative peritonitis, celiotomy is useless and unjustifiable unless performed early. Little is to be hoped for from celiotomy in these virulent cases, as the rapidity of the spread of the poison is so great that it renders a sufficiently early performance of the operation very infrequent.

Dr. Parrish reported that he had performed celiotomy eight times after labor, with one death. In every case there was pus in the tube, ovary, or uterine parenchyma, or encysted in the peritoneum. In the fatal case, death resulted from exhaustion and shock and the very hot weather, the temperature of the room at the time of operation being 98°.

Prior to the performance of celiotomy for any condition following labor, the genital canal should be rendered as aseptic as possible. The uterus should also be curetted with a dull curette before the operation, and repeated douches used.

(To be concluded.)

CORRESPONDENCE.

THE FERTILITY OF HYBRIDS.

To the Editor of THE MEDICAL NEWS,

SIR: In your issue of August 13th the interesting paper of Dr. W. A. Dixon contains some ethnologic generalizations which it seems to me will not bear criticism. Dr. Dixon's observations on the tendency of mulatto families in Ohio to die out after the third or fourth generation from constitutional diseases and sterility, when the blood is not freshened by white or negro intermixture, are very valuable, and I am glad that he has recorded them. There is thus added another locality to those already known in which mulattoes are unable long to propagate themselves unaided.

In his statement "that ethnologists mainly agree that human hybridity cannot be maintained without reversion or fresh supply from parent blood," Dr. Dixon is hardly supported by the ethnologists. In the first place, I would like to ask Dr. Dixon to point out an existing human race which is not hybrid. If instead of saying, "Ethnologists have sought in vain among the nations of the earth for a race manifestly hybrid," etc., he had said that ethnologists have sought in vain for a race manifestly unmixed, he would have come nearer the truth. There are, indeed, a number of races "manifestly hybrid, with well-defined characters, intermediate between two known races, perpetuating themselves without the concurrence of the parent races," as, for instance, the Moors, a cross between Arab and Berber.[1] Mixed breeds of Chinese and Mongolians, of Chinese and Annamites, and of Chinese and Malays have long flourished independently of the parent stocks, and the last, having readily acquired modern civilization, are making rapid strides in progress.[2] Surely Dr. Dixon does not deny the fertility and physical energy of the "half-breeds" (between Europeans and Redskins) of Manitoba and the western States, yet they fulfil his conditions quite exactly. At least two-thirds of modern Mexicans are descended from half-breeds sprung from unions of Spaniards and Aztecs, and they have been fertile for centuries. The fact of a reversion to one or other parent type does not bear upon the question of the fertility or physique of the hybrids.

Topinard[3] gives so many instances of successful hybridity that it is difficult to understand how so sweeping a statement to the contrary can be maintained. I do not wish to be understood as stating that *all* hybrid races are of uniform fertility—a manifestly erroneous postulate—but merely as denying that "human hybridity cannot be maintained." The cross between Anglo-Saxon and Negro cannot maintain itself in some localities, perhaps in all, but crosses between the dark European races and the Negro flourish in many places.[4] The concluding sentence (not quoted) of the paragraph from Topinard quoted by Dr. Dixon does full justice to the present state of our knowledge of the fertility of hybrids: "The fact is, the question has not yet been settled."[5]

Fertility of hybrids, so far as we now know, however, depends much more upon conditions of climate and other environment than upon the mere fact of hybridity. Topinard's own conclusions[6] are directly opposed to the statement of Dr. Dixon.

Quatrefages[7] notes the Griquas as a hybrid race which increased rapidly, though not mingling with neighboring races. So it is in Tahiti, Marquesas Islands, Manilla, Mindanao, and Brazil.[8] Nott, while showing that the mulattoes are infertile in South Carolina, at the same time admitted that in Louisiana, Florida, and Alabama they are fertile, robust, and energetic. Hombron says that mulatto men and women in the French colonies are extremely fertile. The mulatto population of the republic of St. Domingo maintains itself easily. There is no need to multiply instances to prove that Dr. Dixon's statement is too broad, though undoubtedly true of mulattoes in certain localities. As to the prevalence of struma, tuberculosis, and carcinoma among mixed races I am not at

[1] Dr. Paul Topinard, Anthropology, American edition, Philadelphia, J. B. Lippincott & Co., p. 371.

[2] Topinard, loc. cit., p. 371.

[3] Loc. cit., pp. 370–377.

[4] Topinard, loc. cit, p. 374; also A. de Quatrefages, The Human Species, New York, D. Appleton & Co., p. 263, et seq.

[5] Loc. cit., p. 375.

[6] Loc. cit., pp. 376, 377.

[7] Loc. cit., p. 262,

[8] Quatrefages, loc. cit., p 262.

present prepared to say anything, but hope to be in a future communication.

Dr. Dixon asks if the affections named "prevail among the Jews and other unmixed races," and so falls into the popular error of considering the Jews a race instead of merely a religious sect. Even if the Jews are admitted to be a race, they are certainly not unmixed. The Old Testament is one continuous record of intermarriages between the Hebrews and the surrounding tribes. Their prophets and leaders repeatedly reproved them for mixing with the Canaanites, and thereby bore undying witness that intermarrying took place. From the first to the third centuries of our era the Jews were active as proselytizers, and received into their fold thousands of persons of other races.[1] The Jews do not strenuously object to marriages with persons outside of their own sect, provided the Gentile becomes a Jew upon marriage.

Anyone who will look at the Jews as they now come from Europe will readily see that in physical characters they are the most heterogeneous people that ever claimed to be a race. The English, German, Polish, and Russian Jews each, more or less, conform in type to that of the nations among whom they have lived, and the climate or other factors of environment furnish an obviously insufficient cause to account for these resemblances, so that we must conclude that intermixture has always taken place. Marriages between Jew and Gentile occur to-day in the United States, several cases having come under my own observation, and it seems clear that they have always occurred to a greater or less degree wherever the Jew has wandered. Certainly the Jews cannot be regarded as an "unmixed race," and I am not aware of the existence to-day of any unmixed race.

Respectfully,

P. Max Foshay, M.D.

Rochester, N. Y.

HOMEOPATHIC PHYSIOLOGIC ACTION.

To the Editor of The Medical News,

Sir: Richard Hughes, the English homeopathist, in his *Manual of Pharmaco-dynamics*, which represents a course of lectures in the London School of Homeopathy, has the following in the lecture on "Bryonia": "The pathogenesis consists of 781 symptoms, two-thirds of which are contributed by the master (Hahnemann) himself, and the rest by six fellow-provers. . . . In one of the animals poisoned with bryony at Vienna, where a very minute autopsy was made by a practised pathologist, it is noted that the substance of the heart and the muscles of the neck were intensely red. Putting this together with the soreness and pain on motion experienced by the provers in so many parts of the body, even to the production of pleurodynia and lumbago, I venture to set down our drug as a specific irritant of muscular fiber. As we have no other medicine with such an action we must not lose even the hint of it supplied by these facts."

As a contrast to this, turn to the article on "Caffeine" in Wood's *Therapeutics*: "The action of caffeine upon the muscle is readily demonstrated by throwing the isolated gastrocnemius of the frog into a 1 per cent. or even weaker solution; in from two to three minutes the muscle becomes contracted, swollen, round, stiff, and unable to respond to the galvanic current. That it is the muscle-fiber that is affected is shown by the experiments of Pratt and Voit, in conjunction with one in which Pratt found that when an isolated muscle was soaked in a solution of curare until the nerves were killed and then thrown into a solution of caffeine, the usual rigidity was developed. Johannsen states that when a muscle under the microscope is touched with caffeine its fibers can be seen to contract half their length," etc.

He who runs may read.

George Woodward, M.D.

New Haven, Conn.

[1] This statement is made upon the authority of Ernest Rénan, but I cannot at present find the passage for reference.

EXTRA-UTERINE PREGNANCY FROM AN ANATOMIC STANDPOINT.

To the Editor of The Medical News,

Sir: I am engaged in the study of extra-uterine pregnancy from an anatomic standpoint, and desire to obtain as much material as possible upon which to base my work. Through your courtesy, I therefore appeal to those who come in contact with this class of cases to aid me by sending me any specimens with which they may meet.

The specimens should be handled as little as possible, and as soon as possible after the operation be placed in jars containing cotton, and covered by more than their bulk of ninety-five per cent. alcohol or Müller's fluid, and forwarded to me. They should also be accompanied by a brief outline of the history of the case and the measurements of the fresh specimen.

To any one aiding me in this way I will be glad to send a report on the specimen, and in my article will, of course, make due mention of those who have kindly assisted me in my researches.

Respectfully, J. Whitridge Williams.

Pathological Laboratory,
Johns Hopkins Hospital, Baltimore.

THE TEACHING OF ANATOMY.

To the Editor of The Medical News,

Sir: In The News of August 27th there appeared a plea for teaching anatomy from a "physiologic standpoint," the writer stating that he believed the only way to make the study of anatomy interesting and systematic was to begin not with the complex object, the human body, but with the ovum, and thus trace the development of the individual from its very incipiency. The writer also predicted that some "great genius" would some day do this thing.

That this great genius has already arisen is proved by simply referring to the methods and books used in teaching German medical students; and he who wishes to see the method in operation among us has but to go and listen to the lectures of Professor Piersol at the University of Pennsylvania.

In his course of lectures Professor Piersol first traces, by means of comparative embryology, the development of the human ovum, and then passes to general anatomy, taking up the macroscopic and microscopic considerations at the same time, thus avoiding the error, too often patent among first-year men, of failing to grasp the fact

that embryology, histology, osteology, and general anatomy are but parts of one complex whole.

This plan of study, which makes of anatomy not simply the hand-maiden of surgery, but a science, has been slow of adoption in our schools, no doubt, because of lack of time. But even now, when the institution of four years' curricula is rife, a sentiment for this scientific study of anatomy will have to be cultivated; for so long has that indomitable American desire of getting on in the immediate present held sway among us, that even science has not escaped the stamp of the utilitarian, and the calm study of Nature, to add to the sum of human knowledge, with no immediate pecuniary reward in view, has been left to men of other countries.

That this new method is not to be received unchallenged is illustrated by a certain medical man of no mean repute, who, upon quizzing his son—three weeks old in the study medicine—and not obtaining the desired answers, flew into a dudgeon, berated the new-fangled ways, longed for the good old times, and ended by recommending his son, since he knew more of ova than ossa, to give up medicine and go to poultry-farming.

Naturally, to the man who has grown to look upon anatomy as a mass of facts that teaches him where to make his incisions, this scientific method is an innovation; and to the student in his first few months, rampant, as he usually is, for gynecology and gore, fibers and cells, it may be a bore; but if, after a fair trial, it can be proved that the student thus thoroughly taught his general anatomy does not go to his lecturer on topographic anatomy a better prepared and more interested and attentive listener, and to the dissecting-room a better observer, then, and then only, let the method be called a failure.

JAMES ELY TALLEY, M.D.

PHILADELPHIA.

NEWS ITEMS.

G. Hoppe-Seyler has been made Professor Extraordinary of Internal Medicine at Kiel.

Address Wanted.—We have received a communication from R. C. ELLIOTT, M.D., unaccompanied by the address of the correspondent.

Dr. E. P. Davis has been appointed Clinical Professor of Diseases of Children in the Women's Medical College of Philadelphia.

Elective Cesarean Section.—On September 28th, at the Kensington Hospital for Women, Dr. Charles P. Noble performed Cesarean section on a primipara having a scolio-rachitic flat pelvis with a true conjugate estimated at two and three-quarter inches. The woman being at full term, the operation was done at a selected hour instead of permitting her to fall in labor.

This makes the fourth Cesarean section done in this Hospital, and the sixth done by the surgeons of the Hospital. All the previous cases have recovered.

In the recent case the mother and daughter are doing well.

On the Action of Alcohol and its Value in Disease.—The American Medical Temperance Association, through the kindness of J. H. Kellogg, M.D., of Battle Creek, Mich., offers the following prizes:

1st. One hundred dollars for the best essay *On the Physical Action of Alcohol, based on Original Research and Experiment.*

2d. One hundred dollars for the best essay *On the Non-alcoholic Treatment of Disease.*

These essays must be sent to the Secretary of the Committee, Dr. Crothers, Hartford, Conn., on or before May 1, 1893. They should be in type-writing, with the author's name in a sealed envelope, with motto to distinguish it. The report of the Committee will be announced at the annual meeting at Milwaukee, Wis., in June, 1893, and the successful essays read.

These essays will be the property of the Association, and will be published at the discretion of the Committee. All essays are to be purely scientific, and without restrictions as to length, and limited to physicians of this country.

BOOKS AND PAMPHLETS RECEIVED.

Circular No. 36, State Board of Health, Commonwealth of Pennsylvania, 1892. Sanitary Protective Associations.

Sur les Variations Pathologiques de la Résistance du Corps Humain au Courant Galvanique. Par le Docteur René Verhoogen. Reprint, 1892.

Cancer of the Mouth, Tongue, and Esophagus; Their Symptoms, Diagnosis, and Treatment. By Frederic Bowman Jessett, F.R.C.S. Eng. Illustrated. London: Baillière, Tindall & Cox, 1892.

Colotomy—Inguinal, Lumbar, and Transverse—for Cancerous Stricture with Ulceration of the Large Intestine. By Herbert W. Allingham, F.R.C.S. London: Baillière, Tindall & Cox, 1892.

The Surgical Treatment of Neuralgia of the Fifth Nerve. By William Rose, M.B., B.S. Lond., F.R.C.S. London: Baillière Tindall & Cox, 1892.

Fourth Annual Report of the Commissioner of Health of Milwaukee, April, 1892. Milwaukee: Ed. Keough, 1892.

Three Cases of Cranial Surgery. By William H. Morrison, M.D. Reprint, 1892.

Report on Abdominal and Pelvic Surgery, Including Thirty-two Successful Cases of Laparotomy. By William H. Wathen, M.D. Reprint, 1892.

President's Address before the Minnesota State Homeopathic Institute. By D. A. Strickler, M.D. Reprint, 1892.

Biographical Sketch of John C. Hupp, M.D., of Wheeling, W. Va. (Advance sheets from "Prominent Men of West Virginia," now in press.) Wheeling, 1892.

The Modern Apotheosis of Nature. By Swan M. Burnett, M.D. Reprint, 1892.

Bureau of Education, Circular of Information, No. 6, 1891. Contributions to American Educational History, edited by Herbert B. Adams. No. 13, History of Higher Education in Massachusetts. By George Gary Bush, Ph.D. Washington: Government Printing Office, 1891.

Bureau of Education, Circular of Information, No. 1, 1892. Southern Women in the Recent Educational Movement in the South. By Rev. A. D. Mayo, M.A. Washington: Government Printing Office, 1892.

Regional Anatomy in its Relation to Medicine and Surgery. By George McClellan, M.D. Vol. II. Philadelphia: J. B. Lippincott Company, 1892

The Ethics of Opium Habitués. By J. B. Mattison, M.D. Reprint, 1892.

Striking Forms of Nervous Dyspepsia of an Aggravated Type, and Cases in Practice. By F. Peyre Porcher, M.D., LL.D. Reprint, 1892.

State of Arkansas against Dr. George E. Pettey; Charge, Involuntary Manslaughter. Des Arc, Ark., 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, OCTOBER 15, 1892. NO. 16.

ORIGINAL ARTICLES.

THE SURGICAL TREATMENT OF CONTRACTURES.[1]

BY A. T. BRISTOW, M.D.,
OF BROOKLYN, N. Y.

THE contractures that occur in certain diseases of the nervous system, together with the resultant deformities, are by most physicians engaged in general practice considered to be irremediable. Many neurologists also deprecate surgical interference, certainly in the spastic cases. Gowers, for instance, speaks of tenotomy as being undesirable, and, mentioning the equinus that develops in spastic paraplegia, says in the most positive manner that division of the Achilles tendon is useless and ought never be done.

My experience with these contractures, though not large, it is true, impels me to say that more is to be expected from surgical interference in their treatment than from any other measures.

This whole subject has been briefly but most ably handled by Dr. DeF. Willard, of Philadelphia, in an article that appeared in THE MEDICAL NEWS, December 19, 1891, in which will be found the results of an experience far exceeding my own. My apology for presenting this subject for consideration lies in the fact that few voices have been raised in opposition to the generally expressed opinions of neurologists, and, as I believe that they take too pessimistic a view of the subject, I desire to record my own brief experience as to the desirability and successful results of surgical interference in the treatment of these intractable deformities.

To classify the cases broadly, they may be of cerebral, spinal, or peripheral origin. The first class is certainly in children the largest, and while usually following a birth-palsy is also often secondary to lesions developed later in child-life. Every physician in active practice has met with such children, who with distorted limbs drag out a miserable existence. Most county institutions contain numbers of them, and in many a home they are kept secluded with tender but hopeless care. Many of the children are imbecile, but a very large number possess a great deal of intelligence and the keenest sensibility, and are profoundly conscious of their own helpless condition. Little is, however, done for them.

The family physician may, indeed, at the mother's request, make a few sporadic applications of electricity, advise massage, or finally send the child to an instrument-maker who fits him with braces which he cannot wear; but gradually the case is abandoned as utterly hopeless. To the suggestion of the surgeon that the tendons of the contractured muscles be divided, or in the case of the adductors of the thigh the muscles themselves, the neurologist objects, saying that as the spasm is of central origin it is illogical to expect anything from operative interference. The family physician likewise holds up his hands at the idea of a tenotomy, and so the surgeon does not often have an opportunity to put his methods to the test.

In addition to the class of cases just referred to there are also cases that result from a sclerosis either in the lateral or anterior columns. The contractures following anterior polio-myelitis, resulting, as they do, from unopposed muscular action, we need not here consider, for the propriety of tenotomy in these cases is hardly debatable. The lateral-column scleroses are those that produce active spasm and contracture, and for such cases, as in the cerebral forms, it is necessary to put in a plea for the surgeon. They form about forty per cent. of the total number of cases of infantile spinal paralysis of sclerotic origin (Willard, *loc. cit.*), and are, therefore, almost as numerous as the cases of infantile paralysis, so called.

There are a few cases remaining that may be placed in a group by themselves, that follow injury to a nerve-trunk itself—as, for instance, the ulnar. In these, as a result of the atrophy of the interossei, we have the *main en griffe*, with the first phalanges extended, the second and third flexed. The result of such a condition is an absolutely worthless hand.

Injury to the musculo-spiral nerve and consequent neuritis may give rise to spasm and contracture of the extensors, the result being, of course, an equally useless hand. I have seen two such cases lately, one of eight years' standing and one of quite recent origin. In both, I believe, a hand with the fingers in constant and complete flexion would have been of more value than the open palm. Similar cases are not numerous, however, and it is chiefly in the contractures of cerebral and spinal origin, with coincident spasm, that I wish to urge the propriety of

[1] A paper read before the Brooklyn Surgical Society, June 21, 1892.

operation—tenotomy or myotomy, or both, as the case may require. I believe in dividing all structures that offer resistance to free joint-motion. My reasons are as follows: First there is a pretty uniform agreement that medical treatment is useless, whether in the form of drugs or electricity. Says Gowers: "Large doses of bromide have but a trifling effect [on the spasm and contracture]. Neither Indian hemp, belladonna, nor piscidia erythrina has much effect. In the infantile form of spastic paraplegia drugs are useless [to control the spasm]. Electricity in all forms is useless." He is here speaking more particularly of the spasm rather than of the contracture, but what is true of the first condition is preëminently true of the second. Besides, spasm and contracture are coexistent, and later on, if the spasm has diminished, the contracture will usually have remained stationary, or perhaps have increased. Not to multiply quotations from different authors, it may be said that these are the views in general maintained. Nothing is to be hoped for, then, from medical treatment as far as we know at present.

With people of means it is not long before such cases are brought to the instrument-maker and an attempt is made to fight the contractures with steel bars and unyielding shoes. Everyone who has tried these knows the result of such illogical methods of treatment. The limbs of such patients are extraordinarily sensitive to pressure. They are the subjects of impaired nutrition, and resent violence and pressure by increased spasm, further aggravated by the ulcerations and irritable callosities that soon make their appearance and render the last condition of the patient worse than the first. I took from one of my patients, a child ten years old, some ten pounds of such apparatus for both legs, reaching from hip to foot. The so-called braces were expected to counteract the spasm of contractured hamstrings and gastrocnemii. The parents had paid $250 for these instruments of torture, which the child was finally obliged to discard, because of the extreme pain that followed any attempt to walk in them. What else could be expected? Flesh and blood are no match for iron and leather. Something had to give way, and it was not the apparatus or the deformities. I think I may safely say that it is futile to expect the relief of these contractures in spastic cases from the use of apparatus *while the spasm and contracture persist.* What then remains? The cases are usually abandoned as hopeless. Can nothing be done for them? Most of them are so entirely helpless that it seems justifiable to try any means which offers the slightest hope of improvement, and I believe that nothing but a complete division of all the structures that interfere with the full and complete motion of the joint will be of any avail in relieving the deformities.

In considering the advisability of an operation there are four questions for the surgeon to answer: 1. Is relief possible in other ways? 2. Does the operation endanger life? 3. If unsuccessful, will it render the condition of the patient worse than before? 4. How permanent is the relief which is expected as a result?

It is believed that the first question has been already answered. With regard to Schaefer's method of stretching contractured muscles, I am of the opinion that it is not applicable in spastic cases, nor do I know that he uses it in such cases. It is undoubtedly useful in those contractures resulting from unopposed muscular action, but not if there is contracture and spasm as well. The more these shortened muscles are stretched, the more the spasm; so that the effort to relieve one pathologic condition induces another.

In these days of antiseptic surgery it is hardly necessary to answer the second question other than in the negative. Tenotomy or myotomy is certainly subject to as little risk to life as any surgical procedure. Nor will the operation leave the patient in worse condition than before. Even if it does not reduce the deformity, it can only leave the patient where it found him. It is true that certain accidents—such as erysipelas, teno-synovitis, or deep phlegmon—may occur as the result of any operative procedure. Perhaps, however, it is better not to call them accidents, because they are clearly the result of faulty antisepsis, and are preventable. When they do occur, especially after operations on the flexors of the hand, the patient is certain to lose what little function the original disease has spared. Such an event, however, is chargeable, not to the operation, but rather to the operator. I have opened the sheaths of the flexor tendons of the carpus a number of times in the preceding winter, split the lifted tendons, sutured them with black silk, and returned them to their sheaths, and I have yet to meet with a case in which the wounds did not heal by primary union. With care and rigid antisepsis the worst that can happen in these cases is failure to relieve the deformity.

Lastly, are we to expect permanent relief in those cases which at the time appear to be benefited by the operation?

The few cases in which I have done these tenotomies and myotomies have not relapsed. The relief, so far, seems to be permanent. The contractures have not returned. It is true that this is something that many neurologists refuse to believe a possibility. They say that as the spasm is of central origin it is, therefore, illogical to attempt to relieve it by section of the affected muscle. Nevertheless, the fact remains that muscles that before division were the seat of intense and disabling

spasm have, after tenotomy, remained free from both spasm and contracture.

It is not claimed that tenotomy or any other operation can cure the original disease or restore the histologic elements of the brain or the spinal cord that have been strangled by sclerotic processes, but the deformities that result therefrom can be relieved and the patient's life be made much less burdensome. These contractures are doubtless primarily due to central lesions, yet may it not be possible that their permanence depends on the altered nutrition of the muscles themselves.

The nervous system of the young, though singularly sensitive beyond that of the adult, is possessed of far greater reparative power. Illustrative instances are not uncommon. Muscles that have long since ceased to respond to volition have, under the influence of strong emotion, suddenly answered when called upon—too often, unfortunately, to furnish an advertisement for a faith-cure or a sacred relic. There are cases, however, in which the science of to-day, little credulous, would say that a certain amount of unconscious repair had taken place in the nervous system, that conduction had returned to the nerve-fibers, receptivity to the brain, and contractility to the muscles. The patient remained helpless because the mind had become accustomed to the paralytic condition of the body. Strong emotion breaking in upon this state has, however, revealed the return of function. It cannot be denied that something like this does take place, of which the crutches hung up at Lourdes and Knock are witnesses, for the pilgrims to these shrines are not all hysterical who leave these mementoes there.

Now, if unconscious repair can take place in non-spastic cases (and I am sure that it does), it is evident that in the spastic cases an organic contracture with coexistent spasm is an insuperable obstacle to the exercise of muscles that might otherwise be ready to respond to volitional impulses. The irritative processes set up by the primary disease may subside, yet because of the structural changes in muscles, spasm and contracture still exist and prolong the helplessness of the patient. I am led to believe that this may be the case because in several instances, when violent spasm followed every attempt to use a contractured limb, on division of the tendon with the subsequent lengthening the spasm did not reappear. Tenotomy certainly did not affect the central lesion. Such a fact as this opens a most interesting field for discussion of the causation of such symptoms as ankle-clonus and the various exaggerated reflexes of these diseases. It is not impossible that the increased tension produced by the shortening of the muscle may have much to do with its increased irritability. In reply to this suggestion, it may be objected that if this were true we ought to encounter a similar condition of irritability in the contractures of infantile paralysis. Unopposed muscular action in healthy muscles supplied from a normal center (normal so far as these muscles are concerned) is a very different thing from contracture that has taken place in a muscle with faulty innervation, derived from a center that is irritated or irritable because of definite anatomic changes. It is certain that repair in these cases can never be complete; yet, if even but a measure of repair has taken place in the brain or in the cord in these spastic cases, the increased tension of contractured muscles may be the most prominent factor in their continued irritability. However this may be, it is certain that I have seen a year elapse after tenotomy in these cases without the return of either contracture or spasm—a result that, I confess, surprised me, as I expected the return of ankle-clonus at least, when I had divided the gastrocnemii.

I have already, in this article, briefly indicated those disorders of the nervous system in which these contractures appear. It is hardly necessary for me to enumerate the diverse and cruel deformities that they entail upon their victims. As far as individual muscles are concerned, I have noticed that the contractures appear in those that are the most powerful and largest. Thus, in the upper extremity there is usually flexion at the forearm, wrist, and finger. The thumb, too, is adducted. In the thigh it is the adductors and flexors also that suffer, whereas in the leg it is the gastrocnemii. It seems as if the relative mass of the muscles determined the seat of the contracture. The stretching of the weaker muscles by their more powerful opponents may perhaps explain their comparative freedom from contractures and exaggerated reflexes.

It is a matter of regret that I am unable to bring before you to-night some of the cases on which I have operated. I must content myself with briefly mentioning a few of them. Later on I hope to be able to show results to this Society. At present I shall simply give the history of one case belonging to each of the classes indicated.

Case I belongs to the spinal spastic cases. I first saw it about two years ago. When about three years old he had been attacked with lateral-column sclerosis (Erb's paralysis) and at the time I saw him first was eleven years old. He then had contracture of the gracilis, semi-membranosus and semi-tendinosus of both sides, as well as both gastrocnemii and peroneals.

It was impossible for him to sit on the floor, or to straighten his legs at the knee, and every attempt to walk brought on intermittent spasm of all these muscles, so that he shook as if with an ague. He was a most unpromising case. He came to me in the apparatus I have already alluded to, with

numerous callosities and abrasions on his limbs, from hips to feet. It was utterly impossible for him to walk, even in a Darrach's wheeled crutch, so great was the pain produced by the apparatus. I have rarely seen a more helpless case. One year ago I got consent and divided the tendons of all the contractured muscles, twelve in number. The operation was subcutaneous and the recovery uneventful. When I put the child on his feet again I found that the spasm did not return, nor was I longer able to elicit ankle-clonus, although before the tenotomy of the gastrocnemii ankle-clonus had been most acute. This was a year ago. Up to this time the spasm has not returned, and the child is now able to get about a little on crutches. He can stand upright on his legs, or sit on the floor with his legs straight out in front of him—acts that had previously been impossible. In fact, there has been a radical change in his condition, an improvement that is on the increase, and I believe that with electricity, gymnastics, massage, and the assistance of appropriate prosthetic apparatus with which to assist the released but weakened muscles, he will ultimately gain some power of locomotion. He is already far less of a burden to himself and others.

It may be of interest to describe the shoes that I devised with the assistance of Dr. Slee, of the Hoagland Laboratory. We took casts of the boy's feet in plaster, and on these casts shrunk rather stout wetted sole-leather lined with spongiopiline, the shoe for each foot being in two pieces like a Sayre shoe, to admit of motion at the medio-tarsal joint. To these shoes was sewn a very broad sole, so that it is impossible for the child to tread on the side of the foot. The talipes having been rectified by the operation, there was a paralytic condition to deal with, and the shoes so far seem to be a success. In the first place, they are an absolute fit, having when wet taken the imprint of every prominence of the feet. The spongiopiline, too, is an additional safeguard against abrasion and painful pressure, and the shoes are far lighter and much less expensive than a pair of Sayre shoes.

The boy walks in them, whether in his wheeled crutch or on ordinary crutches, without the slightest pain, something never before accomplished. This in itself is a gain of no mean importance and has an important bearing on his future condition. It is almost impossible to coax any child into attempts to use weakened limbs, if the effort gives pain; and the case is now in a condition from which progress may be expected.

A type of the cerebral-spastic cases is the following: A young man, aged sixteen years, was brought to me from Utica, suffering from the late contracture of hemiplegia, the muscles chiefly affected being the flexors of the wrist and fingers.

This spring I performed an open operation on the flexores carpi ulnaris and radialis, splitting and suturing their tendons. The wounds healed by primary union, and up to this date the wrist has remained straight, nor have the contractures returned. It is my intention to treat the flexors of the fingers in a similar manner in the fall, provided the carpal flexors have at that time not recontracted.

Already the hand is more useful, because the sharp flexion at the wrist has been relieved. The tenotomy indicated, it is hoped, will give him a fairly useful hand.

Of those contractures that result from injuries to the peripheral nerves I have one case to report which I saw in consultation with Dr. Slee, the attending physician. The deformity was a *main en griffe* resulting from the destruction of the ulnar nerve (gunshot), with consequent wasting of the interossei and the remaining muscles of the group supplied by that nerve. Curiously enough, however, there was a contracture of the flexor carpi ulnaris. I suggested division of this tendon, in order to straighten the wrist, and subsequent division of the tendons of the extensor communis digitorum, with the object of affording the man a closed hand, which would certainly be more useful than the claw that he possessed. The flexor carpi ulnaris was divided and the wrist straightened, but permission was given to divide only the extensor tendons of the little and ring fingers. This also was done and with a very perceptible gain; still, although the vincula had also been divided, these fingers could not be entirely closed. The case was of eight years' standing, and I am of the opinion that further closure of the fingers was prevented either by adhesions or altered joint-relations. Had this operation been performed on the first appearance of the deformity a more useful hand would have been the result—more useless it could not have been.

Finally, I do not bring forward tenotomy in these cases as the one and only thing necessary to a cure. With the relief of the contracture and deformities the real treatment of these cases may be said to commence. This is the foundation-stone. It is absolutely essential, but it is only the beginning of treatment. Afterward electricity, massage, suitable prosthetic apparatus, all have their proper places and uses. Without them the case will almost certainly relapse into its previous helpless condition, even though the contractures do not return.

Without these aids and incentives to recovery the case will certainly not progress, and on the other hand I am confident that with tenotomy and appropriate after-treatment there are few of these sad cases that cannot be at least greatly improved. Absolute cure we can expect in very few.

IRRIGATION OF THE BLADDER IN CHRONIC CYSTITIS OF WOMEN.[1]

BY A. STEWART LOBINGIER, A.B., M.D.,
PROFESSOR OF PATHOLOGY AND CLINICAL SURGERY IN THE MEDICAL DEPARTMENT, UNIVERSITY OF COLORADO; SURGEON ALTERNATE TO ST. LUKE'S HOSPITAL; PATHOLOGIST TO THE ARAPAHOE COUNTY HOSPITAL AT DENVER.

IT is not the purpose of this paper to discuss those forms of cystitis that result from the presence of calculi, neoplasms, or tuberculous deposits in the bladder. Irrigation of the bladder will prove only an adjunct in the mitigation of such conditions. If we exclude these causes we shall still have a sufficiently comprehensive etiology for chronic cystitis. Common causes of simple chronic cystitis in women are: Traumatism during labor; gonorrhea; anteversion; anteflexion; traction by a prolapsed uterus; pelvic peritonitis and cellulitis, resulting in cicatricial bands; and irritation following lithemia of long standing.

So frequently has failure attended efforts to obtain perfect cure in these cases that unfortunately a tendency has arisen to resort to radical measures, like cystotomy or Emmet's buttonhole operation. None can fail to recognize the *raison d'être* of cystotomy in its proper domain; but a vigorous protest should be made against precipitately engaging in a dangerous surgical operation, when we have at hand a procedure that is more rapidly curative, and vastly more scientific. The principle of drainage in Emmet's operation may, upon the whole, be accepted as correct. But, as a matter of fact, what is gained by its adoption in practice is a new and easy channel of reinfection. Too often it is made the refuge of indolent practitioners who seek to escape the laborious details of a more elegant method of treatment.

It must be conceded that irrigation of the bladder has proved ineffective in the hands of many who have attempted it in an awkward and unscientific manner. How can a physician hope for success when he violates every law of asepsis, or is content to consign the difficult and delicate details of this procedure to the nurse or some member of the family? All too often the busy practitioner, finding it impossible to undertake the tedious task of washing out the bladder, has recourse to drugs as a convenient substitute. Diuretics and genito-urinary tonics have their place in therapeutics as adjuvants, but they are slow in their action on the diseased vesical membrane, and frequently have a disastrous effect on the digestion of patients. I am convinced that they are more often the cause of albuminuria, cloudy swelling of the renal epithelium, and chronic parenchymatous nephritis than the average practitioner would be free to acknowledge.

[1] Read before the Colorado State Medical Society, at Denver, June 22, 1892.

Since the advent of bacteriology the employment of drugs in surgical diseases is gradually becoming more limited. Nowhere is this fact more conspicuous than in the treatment of catarrhal inflammations of the stomach and bladder. In gastritis and cystitis the leading principle of treatment is the arrest of fermentation and the pathologic lesions induced by fermentation. This is best accomplished by means of irrigation with antifermentative solutions, and not by drugs. A necessary condition of treatment in both of these states is rest, not only of the organ affected, but also of the entire body. In gastritis we may rest the stomach by rectal alimentation. Although organic rest is not feasible in cystitis, yet, by having the patient assume the recumbent position, the pressure of superimposed viscera is removed, traction from cicatricial bands is relieved, and the bladder is free to rise in the pelvis.

Lavage should not be undertaken in any case of cystitis unless the patient consents to go to bed and stay there until cured. Before attempting to irrigate a diseased bladder the operator must recognize the fact that absolute cleanliness is the key to success. I am of the opinion that not even a capital operation demands more rigid and uncompromising adherence to the principle of asepsis.

The following instruments will be required: A new No. 10 soft-rubber velvet-eye catheter. This should be kept in a salt-mouth glass-stoppered bottle containing a 1 : 1000 solution of mercuric chloride. There should be a porcelain basin in which to scald the catheter; also a 1 : 2000 solution of bichloride in glycerin for lubrication. A fountain syringe, having a hard-rubber screw cut-off to limit the stream, will be necessary.

The antiseptic powder to be used in the solution injected must be kept in a perfectly clean glass jar. In preparing this solution a pitcher of the capacity of a quart will be needed. A quantity of cool sterilized water should be at hand, kept in a sterilized bottle having a sterilized cotton stopper. Boiling water may be obtained from a clean tea-kettle that has a cotton filter tied over the spout.

The formula for the antiseptic powder that I use is as follows:

℞.—Boric acid	ʒj.
Sodium biborate	ʒiv.
Sodium chloride	ʒij.—M.

Experiment has proved that boric acid alone is but feebly germicidal; but, when dissolved in hot water in the presence of borax, a solution of real antiseptic value is obtained. The amount of the powder required at each irrigation will vary with the case, but, as a rule, a teaspoonful to a pint of warm water, or a saturated solution, will be well borne. It is better to dissolve the powder in boiling water,

the temperature of which can afterward be reduced by the addition of cool, sterilized water. No other antiseptic tried has been found to give satisfaction. Mercuric chloride, carbolic acid, and potassium permanganate have all been employed, but were badly tolerated, even in the weakest possible solutions.

In cases in which a tonic astringent was indicated I have employed a solution of silver nitrate, from ⅛–½ grain to the ounce, injecting an ounce and a half immediately after the irrigation on every second or third day, and allowing the patient to retain the solution about thirty minutes. Many cases will be encountered that will not bear this solution stronger than ¼ or ½ grain to the ounce. In all cases its use should be governed by the condition of the bladder and should be employed in the later stages of the treatment. At no time should the injection of silver nitrate be preceded by an irrigation with a saline solution. Simple sterilized water will be sufficient and will obviate the precipitation of silver chloride.

Much has been said and written in regard to the proper quantity of sterilized water to be used at each irrigation. In my experience, the average case has done well when not less than four ounces have been used; but the progress has been much faster when eight ounces could be tolerated. Before the case has been cured I have been able to use from sixteen to twenty-four ounces at each irrigation, with unquestioned benefit to the patient. This quantity of liquid does not occasion vesical distention or injury to the bladder-wall, because not more than from two to four ounces are injected at once, the process of siphoning off being repeated four or five times during the irrigation. The comfort of the patient may usually be accepted as a guide. There will be found a wide range of capacity, governed largely by the original size of the bladder in health, the degree of pathologic change in its walls, and the irritability present in disease.

In cases in which decomposition is prominent, there exist little saccules in the mucous membrane where erosion has occurred from the presence of bacteria, triple phosphates, and purulent débris. These pockets can never be reached and cleansed unless the mucous membrane can be gently unfolded and spread out as a smooth surface. It is, therefore, often necessary to produce gentle distention by hydrostatic pressure, in order to eliminate these foci of fermentation, which cause and perpetuate the trouble. Each operator must determine for himself the degree of distention with which it is safe to begin, remembering that in cases in which fermentation is most marked there is greatest erosion of the bladder-wall. One treatment daily will ordinarily be sufficient, but conditions are often present under which two treatments a day give by far the more speedy and satisfactory results.

It has been my object in discussing this question of irrigation to call attention to the supreme importance of absolute cleanliness. Experience has shown unmistakably that when ordinary antiseptic precautions were taken the results were fair and moderate; but when extraordinary precautions were observed, the results were accurate and perfect. And these results were not measured by gross methods and misleading symptoms, but by the unerring aid of frequent and searching microscopic examinations.

In preparing for irrigation of the bladder, the first step is to scald out a small pitcher. In this the antiseptic powder is dissolved in a few ounces of boiling water. While waiting for perfect solution, a pint and a half of boiling water should be poured into the fountain syringe and allowed to remain until the syringe is needed. The catheter, which has been kept in a bottle of 1 : 1000 bichloride solution, is removed to a small basin containing boiling water. The antiseptic solution can now be reduced in temperature by the addition of cool, sterilized water taken from the cotton-plugged bottle already mentioned. The prepared solution is now poured into the fountain syringe, all air is expelled, and the cut-off screwed down. Meanwhile, the nurse has cleansed the external genitals of the patient with a 1 : 2000 bichloride solution. There remains only to pass the catheter and connect it with the tube of the syringe. Taking the catheter from the hot water with fingers disinfected in an antiseptic solution, bichloride glycerin is poured over two inches of the end as a lubricant, and the instrument, in a good light, is passed instantly into the bladder.

If the bladder is full, considerable urine must be allowed to escape to make room for the antiseptic solution. If there is little urine, there is danger in allowing it all to run out and permitting germ-laden air to be introduced through the catheter. The only convenient means of expelling the air from the catheter, when this instrument is first introduced into the bladder, is to allow a small stream of urine to pass outward through it. Before the catheter is connected with the syringe tube, all air must likewise have been expelled from the latter by allowing a column of the antiseptic solution to pass through. At first, a gentle stream is turned on. The force is governed by the elevation of the reservoir and by the screw cut-off. The importance of injecting slowly cannot be too strongly emphasized.

When the patient begins to feel a sense of slight distention the tube and catheter are disconnected. While the operator cuts off the stream from the syringe with his right fingers, with his left he guides the stream from the catheter into a quart

bowl placed between the patient's legs. The operation of siphoning must not be carried to the extent of absolutely emptying the bladder. A little fluid should be left in to prevent the admission of air and to keep the bladder-walls from collapsing and causing spasm. It is best to leave at least an ounce of the antiseptic solution in the bladder after the last siphoning.

The following cases are cited in illustration of the foregoing treatment:

CASE I.—A married woman, thirty years old, eight months previously to coming under treatment for cystitis, had an abortion at the third month, followed by pelvic peritonitis. The uterus was anteverted and held in that position by firm cicatricial bands. For five or six months she had complained of urethral irritation. A few days before I was called, she had suffered exposure, which lighted up the old pelvic inflammation and at the same time aggravated the irritation of the bladder. There was present the characteristic desire to urinate frequently, the act being attended with intense pain. The pelvic inflammation was treated by rest, fomentations, and saline laxatives. Opium was used in such quantity as would relieve pain and secure rest. During this treatment the urine was analyzed and found to be swarming with bacteria, while pus, mucus, and calcium oxalate were found in great quantities. Repeated analyses showed no variation in these constituents.

Until the subacute symptoms subsided, bland drinks and diluents were given copiously to render the urine less irritating. At the first attempt to irrigate the bladder a silver catheter was used, but this could not be tolerated, even with the liberal use of cocaine. There was intense spasm of the vesical sphincter, and much annoyance resulted from blocking of the eye of the catheter with mucus. The attempt to use a recurrent silver catheter, with a large eye, caused such exquisite pain and such injury to the mucous membrane of the urethra, from the spasm produced by the margins of the eye, that any further attempt to use this ill-constructed instrument seemed barbarous. The irrigation was finally concluded with a simple velvet-eye soft-rubber catheter, No. 10, from the use of which the patient experienced great relief.

The second irrigation was attended with much less difficulty, and at each repetition the irritability was found greatly diminished. Daily examination of the urine showed that the pus and bacteria were decreasing. Within fourteen days from the first irrigation, not a motile bacillus or micrococcus could be found within the field, while the pus had diminished to only an occasional corpuscle. For the last four or five days of the treatment an injection of an ounce and a half of a solution of silver nitrate was given every other day. This injection followed an irrigation with plain sterilized water and was allowed to remain in the bladder as long as the patient could comfortably bear it, which was rarely more than thirty minutes. For the greater part of the time two antiseptic irrigations were given daily. Basham's mixture was prescribed after active inflammation had subsided. As soon as all pathologic products nad disappeared from the urine and the patient had gained sufficient strength to travel, she was sent to the mountains. Although all treatment was withdrawn, save the copious use of water internally, she continued to improve and at the end of two months had regained much more than her usual weight and vigor.

This patient labored under the disadvantage of not being able to take milk, which is almost indispensable in the treatment of every form of cystitis. It is now one year since the case was first seen and inquiry has shown that no relapse has occurred.

CASE II.—A woman, twenty-eight years old, had been married twelve years, but had borne no children. Her general health was excellent, and she was remarkably well nourished. When first seen she could scarcely walk the distance of a square, and was annoyed beyond endurance by a ceaseless desire to urinate. This condition, which had existed for four or five months, was growing steadily worse, until the constant desire to pass water and the agony attending the act, made her a recluse from society. Her physical constitution was so fine that as yet the suffering had made but slight impression on her general health. Mentally she had become morbid and depressed and considered herself in a desperate condition. There could be no doubt as to the diagnosis, and the microscope clearly proved it to be a case of chronic cystitis. Pus, bacteria, mucus, and desquamated epithelium were present in unusual quantity. The urine became intensely foul within ten minutes after removal from the bladder, showing the bacteria to be especially active. The patient was put to bed and kept there until she fully recovered. The bladder was irrigated twice daily for fifteen days. The strictest detail of cleanliness was carried out from the first. To render the renal secretion abundant and bland, a bottle of Vichy was prescribed for each day, together with as much Manitou as could be taken. The diet consisted largely of milk, with a small variety of non-stimulating food. Frequent examination of the urine showed the pus and bacteria to be vanishing rapidly, and by the twelfth day no pathologic products could be found.

It should be stated that in every case in which the urine is examined as a guide for treatment, every vessel and instrument that comes in contact with the urine must previously have been sterilized. Without this precaution conclusions would be seriously vitiated.

Toward the end of the treatment an injection of two ounces of solution of silver nitrate, one-eighth grain to the ounce, was given every other day until four injections had been given. The tonic effect in this instance was especially noticeable. No internal medication was employed, as there seemed to be no indication for it. The patient was confined to bed for twenty days, but there were

four days of intermission in the treatment on account of menstruation. After the urine had for three days been free from bacteria and pus, the patient was discharged. Without the slightest discomfort she resumed her social privileges and duties, from which she had believed herself forever ostracized.

CASE III.—A young married woman, twenty-four years old, three months before coming under observation had been delivered of a child at term by a charlatan who had shamefully neglected her. Ever since her labor she had been confined to bed. Every attempt to assume the erect posture and walk about was attended with great discomfort and suffering. No definite idea could be gained as to the source of irritation, as the patient located her pains in almost every part of the body. Attention was first directed to the pelvis, but so tender was that area that examination occasioned the most intense suffering. Only digital examination could be made; this revealed an anteverted uterus, a lacerated os, and cicatricial bands in the vagina. Further questioning elicited the fact that one month after marriage the patient had had a severe attack of ovarian and pelvic inflammation, which would account for the presence of the cicatricial bands. Judging from the ovarian and pelvic tenderness, the various pains seemed entirely reflex in origin; but pursuing a routine practice, the urine was subjected to a microscopic and chemical examination, which at once cleared up the diagnosis. The urine contained much pus, mucus, desquamated epithelium, and bacteria. At no time in the examination did the symptoms point to the bladder as the chief cause of trouble. The condition of the vesical membrane indicated that irrigation was the proper treatment, and this was at once resorted to. Copious amounts of milk, Manitou and artesian water, and flaxseed lemonade were used as diluents. At first, the irrigations were practised only three times a week; but repeated microscopic examinations showed that the development and ravages of the bacteria were not coming under control. It was then decided to irrigate once a day, after which rapid and constant improvement followed. The aseptic and antiseptic precautions already detailed were carried out with unremitting care. In this, as in the other cases, the bowels and portal circulation were kept free.

Toward the end of the treatment, several injections of a very weak solution of argentic nitrate were given, but the patient bore them poorly and they were discontinued. The case was concluded without resort to medication, except for the exhibition of the fluid extract of corn-silk. When last seen, the patient had become strong and able to walk about briskly with comfort. Microscopic examination of the urine revealed absolutely no pus, bacteria, or other pathologic products.

In the foregoing discussion no claims are made for originality in the principles of treatment. I have wished to emphasize the importance of rigid adherence to asepsis and antisepsis, and the necessity of an accurate and impartial standard of estimating results, which can only be obtained by an intelligent use of the microscope.

THE MEDICAL ORGANIZATION OF GENERAL INSTITUTIONS FOR THE FEEBLE-MINDED.[1]

BY A. W. WILMARTH, M.D.,
FORMERLY ASSISTANT SUPERINTENDENT OF THE PENNSYLVANIA INSTITUTE FOR FEEBLE-MINDED CHILDREN.

INSTITUTIONS for the feeble-minded were first established, and have been largely maintained, as educational institutions. The early struggles of the pioneers in the work, as well as the abundant fruit of their labors, are too well known to need any detailed description. The possibility of improvement, in many cases to a surprising degree, was early and easily demonstrated, and is now generally acknowledged; and the future of the work is assured.

With the extension of the work, however, it becomes apparent that there are many children that, under the most thorough care and training, make but little progress. Others, worse than this, will steadily lose ground, both mentally and physically. Epilepsy is common among them, developing often while they are under care. They are especially prone to pulmonary tuberculosis and other diseases that accompany what is commonly termed a "scrofulous" diathesis; so that in all institutions for the feeble-minded the medical work forms no inconsiderable item, and, if so-called custodial cases are admitted, it is correspondingly increased.

It is my intention to briefly outline the conditions that demand the physician's care, the scope of his work, and to some extent the manner in which I believe that these demands should be met.

The general idea of idiocy and imbecility formerly was that they almost always represented a condition of arrested development of the brain, which could be largely remedied, or perhaps nearly or quite removed by special training, as imperfect development of the muscular system is remedied by calisthenic exercises under the direction of skilled teachers. Even now that idea is carried far beyond its legitimate bounds, not only among the laity, but also among members of the medical profession. Many a child is brought to institutions for the feeble-minded by hopeful parents who have been told by the family physician, and perhaps by others more skilled in diseases of the nervous system, that the child would, under training, outgrow its affliction; while the superintendent would see, almost at a glance, a case for which no hope existed except in its happy release from a blank existence.

I shall repeat some things said at previous meetings, which have a direct bearing on the diagnosis

[1] Read before the Association of Medical Officers of American Institutions for Idiotic and Feeble-minded Persons, at Elwyn, Pa., June 15, 1892.

and treatment of imbeciles, and the pathologic conditions that accompany defective mental power.

Let us take up briefly the varieties of incomplete or defective development as we find them post-mortem, and the probability of improvement in each variety.

Incomplete growth or development seems to exist in at least four distinct forms. First, a perfectly-formed brain, so far as the presence of all the typical convolutions is concerned, generally below the normal weight, though it may be above what has been assumed as the normal average. It is, however, of a simple type, the cortex perhaps thin and poor in those secondary gyri with which the brains of persons of marked intellectual powers are so well provided. Second, one or more of the principal convolutions may be much limited in length or size, perhaps to one-half or one-third of the normal. In one case that I recall, the first temporal gyri were only about two-thirds of their normal length. Third, a larger or smaller area of the cortex will be found soft, thin, and thrown into a considerable number of tiny folds, convolutions in miniature. Fourth, the brain may appear nearly or quite normal in size and form, but on section some portions of the cortex will be found pale-pink in color, instead of the usual grayish-red. Microscopic examination of these regions will show a paucity of well-formed multipolar cells, while cells of an embryonic type will predominate. All of these conditions are necessarily prenatal.

The first condition is found in many of the children whose progress is so satisfactory in our schools. We have no evidence, clinical or post-mortem, that there is any improvement in the anatomic structure of the last three varieties; possibly, there may be in the second, but the fact is not possible of demonstration.

In contrast with these conditions is another group of abnormal brain-conditions the frequency of which, I am afraid, has never been fully realized, and which are the result of actual disease. These were found in 53 per cent. of a series of 100 autopsies. Among the various lesions, sclerosis, in its various forms, is the most common. *Sclérose tubereuse* is rapid in development, and fatal to the functional activity of the tissues involved. The atrophic form, for which Chaslin has proposed the name of neurogliar sclerosis, is more common, and may be represented by a tiny mass, be finely diffused, or even destroy an entire hemisphere. Thickening of the membranes, with consequent interference with the blood-supply and the nutrition of the cortical cell-groups; primary disease of the vessels and cell-elements, and that less frequent but equally disastrous process that slowly destroys the mental powers, but leaves no change in structure discoverable by present means of investigation—all these are among the direct causes of feeble-mindedness. These are variously ascribed by the parents—probably in many cases correctly ascribed—to dentition, violence, or the various infantile febrile diseases. The last-named pathologic condition is often found in the children of parents of eccentric character or highly-strung nervous systems; emotional or excitable, or exhibiting some phase of that multiform nervous instability that goes under the comprehensive term of "nervousness," and is peculiarly intractable to treatment. The foregoing are, I think, the lesions most frequently met in cases in which the causative conditions are not prenatal.

That comparatively slight causes should create serious and lasting results in infancy will be more readily comprehended when the rapid growth of the brain during this period is remembered. In the first seven years of life the brain is said to attain nearly its full size. As an instance of the effect of the withdrawal of proper nourishment from a rapidly-growing organ, one needs but to look at the indelible mark often left on the growing teeth by acute illness affecting nutrition during dentition. Tuczek, basing his statements on investigations by Huschke and Bischoff, estimates the daily increase in the size of the brain during the first year of life as more than one cubic centimeter. Dr. Robert Boyd estimates the brain-weight at birth in the female as 10 ounces, and as 11.65 ounces in the male. In 15 male children between the ages of three months and six months the weight of the brain was 21.29 ounces; in 46 children between six months and twelve months, 27.42 ounces; in 34 children between one year and two years, 33.25 ounces; in 29 children between two years and four years, 38.71 ounces. Nearly all of the primary convolutions are present at birth, and, according to Schwalbe, the secondary and tertiary folds are evident by the end of the fifth week after birth. Is it not probable that an organ that requires the pabulum to support such active growth will feel any marked deprivation, and feel it permanently?

These few facts in connection with the mental defection in our wards bring us to the question as to the completeness of our medical work. With those children whose mental defects depend on some form of incomplete development the school must be the agent in improvement. It is difficult to see how medical aid can be of much service. With the other and, perhaps, larger class we are handicapped by our lack of knowledge as to diagnosis between these different pathologic conditions, and the means and effects of proper medication. In the past it has required all the energy of our superintendents to develop methods of education and care, and to bring the work properly before the public and the legislatures of the different States. But now this work

has, in most States in which institutions exist, attained a permanent place, and the time seems ripe for closer study of the comparatively unstudied conditions that bring under our care so many afflicted ones. And how shall their demands best be met?

We can derive but little help from books on the differential diagnosis and treatment of these conditions of undeveloped or injured brains, but we have abundance of material and ample opportunity for the study of them. For years, in our principal institutions, information bearing on the etiology of idiocy has been collecting. To this should be added close clinical observation, with careful record of all symptoms bearing on disturbance of the nervous system in youth, and last, but not by any means least, these records should be carefully compared with existing lesions, as revealed at the post-mortem table. We should strive also to bring our charges under our care early in life, before the morbid processes are matured and the brain is irretrievably injured. In this way, and only in this way, does it seem to me that we can ever master the full extent and detail of our work. The results of such work should be given to the general profession by publication as fast as it yields reliable data, for with the profession largely rests the care of our children during the early stages of disease, and in its hands rests the application of preventive measures, if such measures can be determined.

How much good will result from such studies we cannot estimate; but, if the infirmity which it is our life-work to combat has for its foundation a material cause, our work will always be incomplete until we have mastered the knowledge of that cause and have employed all of our resources to remedy it. Should such effort result in making us more expert in diagnosis, its effects on our schools' care would become at once available. If we knew in which children the retrograde change was still active; in which it had ceased to progress; in which hopeless non-development would make school-training useless; in which a well-formed but inactive brain needed all the mental stimulus we could give it; or in which a brain, still in the active process of disease, required rest from mental strain, and needed the use of a simple, unirritating diet, stated periods of rest during the day, careful exercise in the field, on the farm, or in the gymnasium; in short, such care as adults in the same condition would receive in a well-appointed sanitarium; then our work would be placed on a far more advanced basis. I trust the time is not far distant when one medical officer in each of our institutions can be sufficiently relieved from ordinary medical and supervising cares so that he may give much time to systematic study of disease of the nervous system in infants, the burden of which plainly rests on our shoulders.

We cannot discuss any question regarding the feeble-minded without giving a place to that important factor—the epileptic. His treatment will find a place in a following paper. The disposition of epileptics in regard to each other and to their companions who are not subject to spasm demands some attention. Shall they be grouped together, or scattered throughout our schools? For convenience and economy in care the first proposition is undoubtedly preferable, and, when a considerable number are to be cared for, they can be very comfortably classified. One question meets us here: Does the contact of epileptic children with others similarly afflicted and with children not afflicted with this disease tend to establish, increase, or perpetuate spasm? I am not satisfied in my own mind that this may not be the case. I have been forced, however, from my own observations and from what I could glean from those of others, to believe that there are few tasks more hopeless than that of attempting the cure of epilepsy that has begun before and persisted beyond the age of puberty; also, that in younger children in whom epilepsy is secondary to destructive lesions, as evidenced by paralysis, marked impairment of some special sense, or decided deprivation of some mental faculty, though spasm may cease, mental improvement is not the usual result in the majority of cases. Justice to other children seems to demand that these cases, with their disturbing influence, should be removed from among the children free from convulsions. With the younger children, however, when the discouraging conditions named do not exist and compel us to an unfavorable prognosis, we may scatter them among the general classes with advantage to them, and without much apparent detriment to their companions, until we are assured that recovery is improbable.

Another point that I would urge is the assumption of the treatment of epileptics as early in life as is possible. Statistics indicate that by far the greater number of recoveries occur in early childhood. It is then that cerebral tissue-change is most active, the morbid and irritative conditions are in their earlier stages, and healthy action is more likely to be restored in response to medical and hygienic measures. Among the serious impediments in the treatment of epileptics is the frequency with which such children will obtain nuts, unripe fruits, and other abominations, either through the mistaken kindness of friends or the proximity of such material to the buildings. I need not dwell on the desirability of guarding our patients, so far as is possible, from these creators of cerebral mischief.

In regard to that indispensable aid to the physi-

cian—the nurse—we do not absolutely need women who have received a high degree of special training, even if the salaries paid in our institutions would command such assistants. An inexperienced woman, if quick-witted, patient, and possessed of a moderate degree of that tenderness and tact that are essential to acquire success in nursing, soon learns to supply every need of our children, and is far better than any trained nurse whose accomplishments will not secure reasonable success in general nursing.

A brief allusion to one more subject, and I will have finished. It is in relation to the study of the causation of idiocy. I cannot close this paper without an earnest plea that this work be energetically pushed, not only in the way of collecting clinical data and family histories, but also in the way of anatomic research. Much time has been spent, and well spent, in examinations of the skull, the jaw, and even the nasal bones of the idiot—too little on the brain itself. The little that has been done demonstrates that it is a work promising rich results—far more promising than similar work among the insane, and which, in connection with the clinical material being collected, will tend to give us a rational theory of causation, a more scientific classification, and, I hope, still better methods of care and treatment.

SYMPHYSIOTOMY, WITH THE REPORT OF AN OPERATION.[1]

BY BARTON COOKE HIRST, M.D.,
PROFESSOR OF OBSTETRICS IN THE UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

SYMPHYSIOTOMY has as remarkable a history as any procedure in surgery. Suggested for the first time in the Surgery published by Pineau in 1598, and first performed upon a living woman in 1777, the idea may be said to be three hundred years old, while its practical application dates back more than a century.[1] From the year of the first operation until 1858 symphysiotomy was performed 85 times in different parts of the Continent of Europe and once in England, with a mortality of 33 per cent. The frequency of the operation diminished after the first few years, until in 1858 it had practically died out. It was revived, however, in Italy in 1866, and in the succeeding twenty years 70 operations were performed with a mortality of 24 per cent. Italy continued to be the exclusive field of the operation until a year ago, when it was again tried in Paris by Pinard, whose interest in it was aroused by a visit of Spinelli from Italy. Ten operations have since been performed in Paris, two in Dresden, and one in Strasburg. From January 1, 1886, there have been 52 operations, with only a single death, due to septic infection before the operation was undertaken. Twenty-three symphysiotomies have been done already this year, and the last 34 women have all recovered.

We owe the introduction of symphysiotomy in this country to Dr. Robert P. Harris, who, as is well known, has long been interested in the subject, and at the recent meeting of the American Gynecological Society in Brooklyn read a paper tracing the development of the operation, showing by most laboriously collected statistics the present brilliant results achieved by it, and demonstrating, by the description of typical cases, its utility in labors otherwise insuperably obstructed by a contracted pelvis.

Ten days after Dr. Harris's paper was read, on September 30th, the first operation in this country was performed by Dr. Charles Jewett, in Brooklyn. Three days later it was again performed at the Maternity Pavilion of the University Hospital in this city.

The position of symphysiotomy is now established beyond a doubt. Its modern revival I believe to be the most important advance in obstetric surgery since the general adoption of abdominal section for the treatment of early extra-uterine pregnancy. It is applicable in contracted pelves with a conjugate over 67 mm., and, therefore, should be the method employed in almost all cases of the kind in this country, for a greater contraction of the pelvis is rarely seen among us. It should, moreover, almost entirely displace the Cesarean section for a relative indication. It is a much simpler, an easier, and a safer operation. This is also the opinion of Leopold, who cannot be accused of prejudice against Cesarean section, with his brilliant record in that field.

There is and will be for some time, perhaps, an objection to the operation from those who have no experience with it, on the ground that sufficient space cannot be thus gained. In answer to this objection is the fact that the pubic bones may gape 7 cm. after their separation, and the statement of Morisani, that the conjugate is thereby increased from 1.3 to 1.5 cm. But an absolutely conclusive answer is furnished by the subjoined clinical records of some typical cases.

Leopold's First Case.[1]—A dwarf, 135 cm. tall, with the following pelvic measurements: Sp. il., 22 cm.; cr. il., 24 cm.; tr., 28 cm.; conj. ex., 17½ cm.; conj. diag., 8¾ cm.; conj. vera, 6¾ cm. She had been delivered thrice previously, twice of dead children, once by the induction of premature labor. After a labor of seven hours and twenty minutes, ushered in by rupture of the membranes,

[1] Read at the meeting of the Philadelphia County Medical Society, October 12, 1892.

[2] R. P. Harris: Amer. Syst. of Obstet., vol. ii.

[1] Centralbl. f. Gyn., 1892, No. 30.

symphysiotomy was performed, with the head above the brim. In ten minutes the child was extracted with forceps. The head was of normal size (transverse, 9¾, 8¼; circ., 34).

Leopold's Second Case.[1]—A woman, delivered once before by craniotomy. The pelvic measurements were as follows: Sp. il., 22; cr. il., 25; tr., 30½; conj. ext., 16; conj. diag., 8½; conj. vera, 6¾. Labor began in the evening; membranes ruptured seven hours later; operation three hours later with head above the brim. Extraction of the child in ten minutes with forceps. The head had a circumference of 35¼ cm.

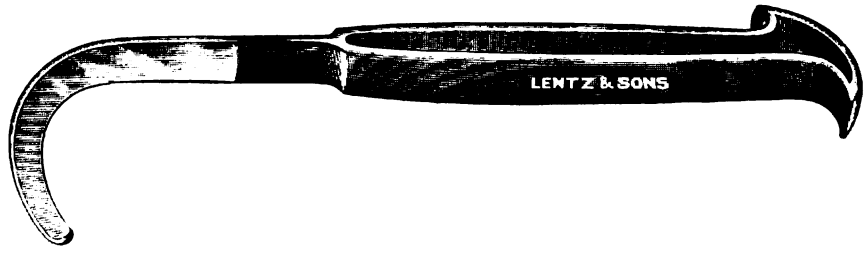
Porak's Case.[2]—A primipara with rachitic pelvis, conjugata diagonalis being 9.6 cm., and pelvis presenting some asymmetry, very likely from scoliosis. Labor began on June 10th. About twelve hours later the membranes ruptured, and from eight to ten hours afterward the os was completely dilated. The head rested above the brim of the pelvis. Forceps was applied, but all efforts to engage and extract the head failed. The symphysis was opened, and the head then extracted "with the greatest ease" by the forceps. Recovery.

Freund's Case.[3]—A woman, in labor six days; water drained off for two days. After opening the symphysis the head was delivered in fifteen minutes without instruments. There were two previous deliveries, one of a dead and one of a living child. The pelvic measurements were: Sp. il., 24½; cr. il., 27; tr., 31; conj. ext., 18½; conj. diag., 10 cm.; conj. vera, 8¼. The child's head after birth was found unusually large and hard. B. T., 10 cm.; B. P., 11 cm.; F. O., 12 cm.; M. O., 14 cm.; S. B., 10 cm. Circumference, O. F., 37 cm. Recovery.

Jewett's Case.[4]—The first symphysiotomy in America, performed by Dr. Charles Jewett, of Brooklyn, on September 30, 1892. Woman, a native American, primipara, fell in labor September 30, 1 o'clock A.M.; at 10 A.M. the occiput appeared at the vulva, but was held fast by an approximation of the ischiac tuberosities, reducing the bisischiac diameter to three inches. Nine hours later Dr. Jewett first saw the patient. The forceps had been vigorously used in vain. Symphysiotomy was performed two and one-half hours later, or eleven and one-half hours after the impaction of the head at the outlet. Delivery was effected by supra-pubic pressure and by shelling the head out with the fingers in the rectum The woman is now in good condition, but unfortunately the child died twenty-four hours after birth, from the compression to which the skull had been subjected during its long impaction in the pelvis.

The University Maternity Case.—A German woman, aged nineteen, pregnant for the first time, was admitted to the University Maternity, September 24th. The examination by the resident physician and the students showed the child to be presenting by the head, the back to the right. The pelvic measurements were: Sp. il., 25 cm.; cr. il., 27 cm.; tr., 30½ cm.; conj. ext., 18 cm.

The internal examination made by myself just before operation showed the conjugata diagonalis to be 9½ cm.; conj. vera, 7¾ cm. The girl fell in labor Saturday morning, October 1st. The pains, recurring all day, on Sunday became very vigorous. On Monday morning, when my attention was first called to the case, the contraction-ring was high, the uterus stood almost straight out from the body, and the child's head was movable above the superior strait. The membranes were unruptured. By no justifiable degree of force could the head be made to enter the pelvis. The fetal heart-sounds were good. It was evidently, therefore, a choice of Cesarean section, craniotomy, or symphysiotomy. The last was done, with the assistance of Dr. R. C. Norris and the valuable advice of Dr. R. P. Harris, who kindly consented to be present. The child was delivered with forceps in one hour and four minutes from the time the operation was begun. I purposely took my time, for the os was only the size of a dollar, and was very rigid, so that a more rapid extraction would have seriously injured the cervix. Head measurements: B. T., 7½; B. P., 9; F. O., 12; M. O., 13½; circ., 34. Mother and child are well.



The technique of symphysiotomy is simple and easy. After thoroughly cleansing the field of operation and disinfecting the vagina as well, a short vertical incision is made on the abdominal wall, reaching to about three-quarters of an inch above the symphysis. The attachments of the recti muscles are severed just sufficiently to admit one finger. The forefinger of the left hand is passed under the symphysis, and upon this as a guide the curved

[1] Centralbl. f. Gyn., 1892, No. 30.

[2] Annales de Gyné cologie, September, 1892.

[3] Müllerheim: "Ueber die Symphysiotomie," Centralbl. f. Gyn., 1892, No. 30.

[4] Personal communication.

knife of Galbiati is inserted until its beak projects under and in front of the symphysis. The joint is then cut upward and outward. To avoid injury to the urethra, a metal catheter is inserted and pressed by an assistant downward and a little to the right, while the knife is placed a little to the left; but with Galbiati's knife I should think that there is little likelihood of cutting the urethra or the plexus of veins in its neighborhood. I at first thought that an ordinary probe-pointed, curved bistoury would serve my purpose well enough, but I quickly laid it aside, and was glad to avail myself of Galbiati's knife, an illustration of which is appended, which I happened to possess—at the time one of the three, I believe, in the country.

As soon as the joint has been severed, the wound should be covered with iodoform-gauze, and then the child extracted with forceps, or allowed to be delivered naturally, as seems best in the individual case. I should, I think, almost always prefer the forceps. It is well to have the trochanters supported by assistants during the passage of the child through the pelvis, so that the sacro-iliac joints shall not be injured.

As soon as the delivery is completed the wound is sewed up, the lowest stitch, if desired, passing through the top of the symphysis. How the whole symphysis can be stitched up, as Leopold claims to have done, I do not understand. After closing the wound and dressing it, rubber adhesive strips are placed around the hips and the lower abdomen, and a tight binder applied. The symphysis unites surprisingly soon, and three weeks after the operation the patient can walk as firmly and as well as ever.

There is only one disturbing thought in connection with the introduction in this country of an operation destined to do so much good. The charge of superficiality lies with some justice against us. We are too ready to reach out toward the top without a sufficient basis of solid preparation, and I fear that symphysiotomy may be undertaken by many who cannot correctly measure a pelvis and who have not the experience to decide whether a head can pass through the pelvis in which it is about to enter or in which it is engaged. There is consolation, however, in the reflection that if symphysiotomy should be done needlessly the results are not likely to be so disastrous as in the case of Cesarean section, which, to my knowledge, was done several times unnecessarily during the excitement produced among medical men by the improved results of the Sänger operation.

Dr. William Macewen, Surgeon to the Royal Infirmary of Glasgow, has been appointed Regius Professor of Surgery in the University of Glasgow.

PURPURA HEMORRHAGICA.

BY B. K. RACHFORD, M.D.,
CLINICIAN TO CHILDREN'S CLINIC, MEDICAL COLLEGE OF OHIO.

DURING the past summer I saw two cases of purpura that I think worthy of publication. One was a case of purpura fulminans, the other a case of purpura hemorrhagica in which the blood-state was carefully studied from day to day.

CASE I was a helpless idiotic epileptic child, nine years of age, of Irish parentage. The family consisted of nine persons, who occupied a three-roomed cottage, and the hygienic surroundings were bad. Two of the children had diphtheria at the time, and one of them was hopelessly ill, dying a few days later of septicemia. While at the house on the morning of May 1st, the mother asked me to look at the idiot child who did "not seem quite well this morning." The child was irritable, refused to take food, and over the scrotum, abdomen, and thighs were a number of dark-blue hemorrhagic spots, but there was no evidence of diphtheria. These spots increased in size till they ran together, producing a uniform discoloration over the abdomen, scrotum, and anterior portion of the thighs. Small spots appeared also over other portions of the body; but at no time was there any bleeding from the mucous surfaces.

The child died on the morning of May 2d, about twenty-four hours after the first symptoms of the disease were noticed.

The following points in this case were of special interest to me:

1. Its foudroyancy.
2. The absence of hemorrhage from the mucous membranes.
3. The presence in the same room of malignant diphtheria.
4. The unfavorable hygienic surroundings.

CASE II.—H. W., seven years old, a German.

Family history. Maternal grandfather and grandmother died of pulmonary tuberculosis, and his mother's only brother now has the same disease, but his mother has always been well. On his father's side the family history is good. One sister died in "spasms" when five months old. The patient has two sisters living, five and two years old, respectively. They are anemic, and have enlarged lymphatic glands in the neck. The family is very poor and the hygienic surroundings are bad.

Personal history. The boy is not well nourished, and is rather thin and pale when at his best. The lymphatic enlargement in his neck is well marked. He has never before had a severe bleeding spell.

April 7, 1892. During the night his nose began to bleed without apparent cause.

8th. The bleeding continued and hemorrhagic spots began to appear upon the legs, arms, and chest. They were dark-blue in color, and varied in size from a silver dime to twice the size of a silver dollar.

11th. I saw the boy for the first time this morning. He had been bleeding from the right nostril continuously for four days. He was very anemic and too weak to stand alone. Pulse 130. I plugged the nostril with absorbent cotton saturated with tannic acid, and ordered ½ grain of ergotin every two hours, absolute rest in bed, head elevated, and milk diet.

12th. Still bleeding. Pulse 140 and thready. Reapplied plug saturated with solution of gallic acid, and continued ergotin, diet, and rest.

13th. Bleeding stopped last night. Pulse 136, irregular and thready. Blood-corpuscles 1,866,000 to the cubic millimeter. Took out the plug, distinued the ergotin, and ordered saccharated carbonate of iron, 3 grains every four hours.

14th. Boy began to bleed a short time before I reached the house, but the bleeding has been slight. Blood examination shows 25 per cent. of hemoglobin and 2,000,000 blood-corpuscles to the cubic millimeter. Reapplied cotton-plug saturated with gallic acid, and ordered ergotin, iron, diet, and rest.

15th. Hemoglobin 30 per cent., and 2,000,000 corpuscles to the cubic millimeter. No bleeding since yesterday; boy seems much better. Pulse 136; has some appetite, takes milk and eggs. Left out the nasal tampon. Other treatment the same.

16th. Saw boy at 5 P.M. He had been bleeding since some time in the night. During this time he lost a large amount of blood. He seems weaker than ever this morning. Pulse 146 and very thready. Hemoglobin 25 per cent., and 1,300,000 red corpuscles to cubic millimeter. The hemorrhagic spots are scattered over the entire body; the old ones are fading and are brown in color, the fresh ones are dark-purple. This morning the baby sister of the patient struck him a slight blow on the forehead with an Easter egg, and there now marks the spot a dark-blue spot the size of a dollar. But a number of other spots have appeared spontaneously. I plugged the nostril as before, continued the iron, but discontinued the ergot as I felt quite sure it was doing no good.

18th. No bleeding for two days. Hemoglobin 27 per cent., and 1,800,000 corpuscles. Boy is much stronger. Is eating milk, eggs, and bread. Continued iron, ordered rest, and left out nasal tampon.

20th. No more bleeding. Hemoglobin 30 per cent., 2,240,000 corpuscles. Patient is very much better, can walk across the floor, has good appetite and digestion. Pulse 120. The hemorrhagic spots are fast disappearing. He has been taking 3 grains of saccharated carbonate of iron every four hours. Iron was continued, and meat and potatoes added to his diet.

24th. Has not bled any for a week; he is going about the house; he feels well and has a good appetite. There are only a few faint spots marking the location of the hemorrhagic spots. Boy is still very pale. Hemoglobin 35 per cent., 2,800,000 corpuscles.

May 3. Boy is going to school and says he is well. Hemoglobin 40 per cent., 3,200,000 corpuscles. Ordered syrupus ferri iodidi, ℥ss, three times a day.

8th. Boy seems as well as before the attack Hemoglobin 55 per cent., 3,200,000 corpuscles.

July 1. Have not seen the boy for nearly two months. He took the iodide of iron for about two weeks and has taken nothing since. He is now quite in his usual health, yet he looks anemic, and has some enlargement of the cervical lymphatics. Hemoglobin 75 per cent., 3,800,000 corpuscles.

The following points in Case II were of special interest to me.

The boy stopped bleeding on the 16th of April, at which time there was 25 per cent. of the normal quantity of hemoglobin found in the blood, and 1,300,000 corpuscles to the cubic millimeter of blood. From this it will be seen that the amount of hemoglobin and the number of corpuscles were about equally diminished by the hemorrhage. But during the four or five days following the cessation of the hemorrhage there is a marked difference in the rapidity of increase of the number of corpuscles and the amount of hemoglobin. During this time the corpuscles increased in number 25 per cent., but the hemoglobin, notwithstanding the fact that the boy was taking iron all the time, only increased 5 per cent. During the next three weeks (the boy taking iron all the time) the hemoglobin increased much more rapidly than the corpuscles, till there was almost a like percentage of each present.

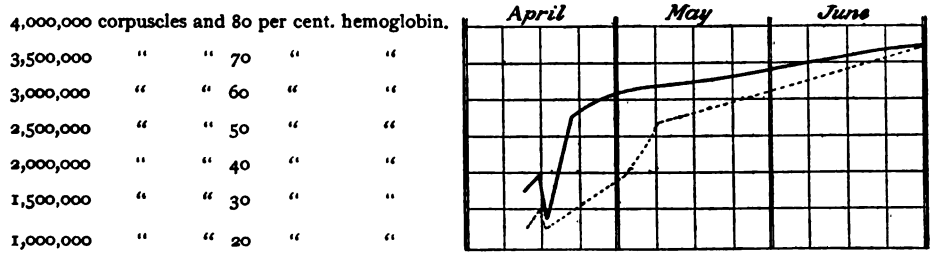
The foregoing observation is practically the same that I recorded in a paper read before the American Pediatric Society (May, 1892) entitled "The Anemia of Tuberculosis." I there said that after a severe hemorrhage the corpuscles were manufactured so much more rapidly than hemoglobin as to produce a decided chlorosis; the explanation for this seems plain. Hemoglobin cannot be manufactured without iron; the rapidity of the formation of hemoglobin would, therefore, be limited by the iron-supply, but not so with the corpuscles; they are manufactured so rapidly under physiologic laws to meet the deficiency, that there is not sufficient hemoglobin to give to each corpuscle the proper percentage of hemoglobin—hence the chlorosis. But this chlorosis gradually disappears, the corpuscles being manufactured so slowly after a time that each corpuscle gets the requisite proportion of hemoglobin. The comparative rapidity of increase of corpuscles and hemoglobin may best be shown by a chart. This chart will be seen to differ from the one given by Dr. Osler in his *Practice of Medicine.*

The etiology and pathology of purpura are by no means well understood, and it is not my purpose here to express an opinion as to the cause and nature of this affection. But I do wish to call attention to some clinical features of the cases reported, that the reader may judge whether or not they have any bearing on the etiology of this disease. But before doing this I would call attention to the well-

known fact that symptomatic purpura may occur in any of the zymotic diseases, such as scarlet fever, smallpox, septicemia, tuberculosis, etc., and it may also be produced by certain chemical poisons, such as the virus of snakes, mercury, belladonna, etc. The inference here is that in both instances the disease is caused by chemical poisons. In the zymotic diseases the chemical poisons may be manufactured by the microörganisms in their struggle for existence with the cells. But how these chemical substances produce purpura is a question we are not prepared to discuss with any satisfaction. I will, therefore, only call attention to some of the clinical features of the cases reported and let the reader judge of their etiologic bearing.

1. The course and duration of the disease was not, I am sure, influenced by the medicines given. Case II ran its course like one of the self-limited zymotic diseases, the disease terminating under the same hygienic conditions as those under which it began.

2. Both of these cases occurred in delicate children with bad hygienic surroundings; in the room with the first case there was a case of malignant diphtheria, and in the second case there was a bad tuberculous family history.



Solid line = number of corpuscles. Broken line = percentage hemoglobin.

ORIGINAL LECTURE.

THE TREATMENT OF ANAL FISSURE, OR IRRITABLE ULCER OF THE RECTUM.[1]

BY LEWIS H. ADLER, JR., M.D.,
INSTRUCTOR IN RECTAL DISEASES IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE.

GENTLEMEN: It is highly important to the success of any plan of treatment directed toward the cure of anal fissure that attention be paid to the condition of the bowels. Regularity of habit should be established and the evacuations rendered semi-fluid, as hard stools generally aggravate the symptoms.

To accomplish these purposes enemata or mild aperients should be employed, and the diet must be regulated, the use of bland and unirritating food being enjoined. All drastic purges should be avoided, as they are more or less stimulating and irritating to the extremity of the rectum.

In order to secure a daily evacuation of the bowels and to render the movement as painless as possible I am in the habit of ordering an enema of warm water or one of rich flaxseed tea, say from half a pint to a pint, to be administered every evening, preference being given to the night-time, as the patient can then assume the recumbent posture, which position, combined with the rest, affords the greatest protection from subsequent pain. If the first enema should prove ineffectual in producing the desired result another should be given in half an hour.

In order to relieve the pain and spasm of the sphincters attending the evacuation, it is well about half an hour before the enema is employed to use a suppository consisting of

℞.—Ext. belladonnæ . . . gr. ½ to ½
Cocainæ hydrochlor. . . gr. ¼ to ½
Ol. theobromæ . . . gr. x.
Misce et fiat suppositoria j.

Or, instead, an ointment of extract of conium may be used, as recommended by Mr. Harrison Cripps:[1]

℞.—Ext. conii . . . . . ʒij.
Olei ricini . . . . . ʒiij.
Ung. lanolini . . q. s. ad ℥ij.—M.

A small quantity of this ointment should be smeared over the parts five minutes before a motion is expected, and again after it has taken place.

The various methods of treating anal fissure may, for convenience sake, be divided into the *palliative* and the *operative*:

PALLIATIVE MEASURES.—Palliative treatment will meet with success in a considerable proportion of cases, especially when there is no great hypertrophy of the sphincter muscles. Allingham[2] states that the curability of the lesion does not depend upon the length of time that it has existed, but rather upon the pathologic changes it has wrought. This same authority states that he has cured fissure of months' standing by means of local applications, when the ulcers were uncomplicated with polypi or hemorrhoids and when there was not marked spasm or thickening of the sphincters.

It is essential to the success of the treatment of fissure, especially by local applications, that rigid cleanliness of the parts be maintained; for this purpose the anus and

[1] Delivered at the Philadelphia Polyclinic.

[1] Diseases of the Rectum and Anus, second edition, London, 1890, p. 189.
[2] Diseases of the Rectum, fifth edition, London, 1888, p. 215.

the adjacent portions of the body should be carefully sponged night and morning and after each stool with hot or cold water, the temperature being regulated to suit the patient's comfort.

In applying the various local remedies it is necessary first to expose the ulcer to view, and to anesthetize its surface with a four per cent. solution of cocaine hydrochlorate, well brushed in with a camel's-hair pencil. The application may have to be repeated once or twice, at intervals of three or four minutes, in order to obtain the desired anesthetic effect.

If any ointment has been used about the fissure the anus should be subjected to a hot-water douche before using the cocaine, as cocaine will not exert its anesthetic influence on a greasy surface.[1]

Among the different remedies that have been used in the local treatment of fissure of the anus may be mentioned the following: Nitrate of silver, acid nitrate of mercury, fuming nitric acid, carbolic acid, sulphate of copper, the actual cautery.

Of these topical applications the nitrate of silver is the best. Its effects are various: it lessens or entirely calms the nervous irritation, which is so important a factor in producing spasmodic contraction of the sphincters; it coats and shields the raw and exposed mucous surface by forming an insoluble albuminate of silver; it destroys the hard and callous edges of the ulcer, and tends to remove the diseased and morbid action of the parts. The form in which I usually employ this salt is in solution (from ten to thirty grains to the ounce). To accomplish the best results the solution should be used once in twenty-four or forty-eight hours, according to circumstances. It may be applied by means of cotton attached to a silver probe or to a piece of wood. The application is made by separating the margins of the anal orifice with the thumb and index finger of the left hand, and introducing into the anus the probe charged with the solution.

According to Bodenhamer,[2] should the ulcer be more than a third of an inch above the margin of the anus, it will be necessary to use the speculum. The solution is to be applied to the fissure only; a few drops are all that is required. If thorough local anesthesia has been induced by the use of cocaine the application of the silver salt produces little, if any, suffering, for by the time that the anesthetic has lost its effect the otherwise acute pain of the nitrate of silver will have passed away.

After each application the part should be smeared well with an ointment of iodoform (thirty grains to the ounce). The odor of iodoform may be disguised by the addition of a few drops of attar of roses. Iodol may be used instead of iodoform, and in the same way. After the ulcer has been touched once or twice with the silver solution the effect will be, in the cases that are benefited by this treatment, a considerable mitigation of the pain from which the patient suffered when at the closet and afterward, and the sore will present a healthy, granulating appearance, and slowly contract in size.

Unless the fissure be complicated with some other affection in children and in young persons, anal fissure is almost always curable by adopting the mode of treatment laid down.

Some authorities speak highly of the use of the acid nitrate of mercury, fuming nitric acid, carbolic acid, the actual cautery, etc., but in my opinion their employment is attended with more suffering than follows the use of the nitrate of silver or the simple operative treatment presently to be described. Furthermore, the application of these remedies is not so certain to effect a cure as either of the two procedures just mentioned, so that I rarely resort to their use.

The daily introduction of a full-sized bougie, made of wax or tallow, will sometimes act beneficially in cases of fissure by stretching the sphincter and producing such an amount of irritation as will set up a healing process in the ulcer. An application of cocaine or of belladonna ointment should be made to the part previously to their employment.

Allingham[1] strongly advocates the local use of the following ointment:

℞.—Hydrarg. subchlor. . . . iv grains.
Pulv. opii . . . . ij "
Ext. belladonnæ . . . ij "
Ung. sambuci . . . ℥j. —M.
S.—To be applied frequently.

He states that he has had many cures with this ointment alone. Another excellent ointment recommended by this same authority[2] is:

℞.—Plumb. acetatis . . . . gr. x.
Zinci oxidi . . . . gr. x.
Pulv. calaminæ . . . . gr. xx.
Adipis benzoinat. . . . ℥ss.—M.

An ointment of the oxide of mercury, thirty grains to the ounce, has cured many cases.

OPERATIVE TREATMENT.—In the more severe cases local treatment will fail to produce a cure, and operative interference will be rendered necessary. There are three methods of repute to be considered in this connection: forcible dilatation, incision, and a combination of these two procedures, viz.: dilatation and incision.

Forcible dilatation. This is the operation recommended by Récamier, Van Buren, and others. It consists in the introduction of the thumbs into the bowel, back to back, and then forcibly separating them from each other until the sides of the bowel can be stretched as far out as the tuberosities of the ischia. It is essential to place the ball of one thumb over the fissure and that of the other directly opposite to it, in order to prevent the fissure from being torn through and the mucous membrane stripped off. As pointed out by Allingham,[3] it is well to repeat the stretching in other directions until the entire circumference of the anus has been gone over. In this manner, by careful and thorough kneading and pulling of the muscles, the sphincters will be felt to give way, and will be rendered soft and pliable. This procedure should always be practised with the patient thoroughly under the influence of an anesthetic, and it should occupy at least five or six minutes. This operation is perfectly safe, but as it is no less severe than the

[1] W. P. Agnew: Diagnosis and Treatment of Hemorrhoids, etc., second edition, San Francisco, Cal., 1891, p. 91.
[2] Anal Fissure, p. 111.

[1] Loc. cit., p. 214.
[2] Loc. cit., p. 215.
[3] Loc. cit., p. 226.

operation by incision, and as it fails to effect a cure in some cases, I can see no advantage in adopting it instead of the more satisfactory and always successful plan of treatment—combined dilatation and incision. It may be found preferable, however, in some cases on account of the prejudice of patients against the use of the knife.

Incision. A fissure can be cured by making an incision through the base of the ulcer and a little longer than the fissure itself, so as to sever all of the exposed nerve-filaments. The cut should divide the muscular fibers along the floor of the ulcer. In a certain proportion of cases this operation will meet with success, but it is not so certain and radical as the operation next to be described. It has the advantage over the other operations, however, of being nearly or entirely painless under local anesthesia produced by cocaine, and, therefore, when general anesthesia is contra-indicated, or is refused by the patient, this method is worthy of a trial.

Dilatation and incision, if skilfully and carefully performed, I believe to be a radical and unfailing cure for anal fissure. The bowels should be cleared out by a dose of castor oil and an injection, after which, under ether-anesthesia, the sphincter should be dilated in the manner previously described. This being accomplished and the ulcer properly exposed, a straight, blunt-pointed bistoury should be drawn firmly across its surface, making a cut about an inch in length and a third of an inch in depth. Instead of the blunt bistoury a sharp-pointed scalpel may be used. It should be entered at the margin of the anus, passed under the ulcer, and made to protrude above the ulcer, the overlying structures being then divided from without inwards.

The subsequent treatment consists in keeping the patient in the recumbent position and in the use of a little opium to confine the bowels. After three or four days a laxative may be given, from which time daily alvine movements should be secured. In seven or eight days the patient can begin to move about, but for at least two weeks he should avoid standing too long on the feet. No dressing is required; the parts should be bathed with a little warm water and carbolic acid soap, to remove offensive discharges,

The subcutaneous division of the sphincter, as recommended by some authorities, is not a satisfactory method, and is mentioned here solely for the purpose of condemnation. It is not only uncertain in its results, but it is also painful, and in more than one instance has been followed by abscesses.

1610 ARCH STREET.

CLINICAL MEMORANDUM.

PURPURA FULMINANS.

BY J. L. NICHOLSON, M.D.,
OF CAMDEN, N. J., LATE RESIDENT PHYSICIAN IN THE PHILADELPHIA HOSPITAL.

THE case here recorded occurred in the service of Dr. E. L. Vansant, at the Philadelphia Hospital, by whose permission this report is made.

Hannah H., a blind woman, forty-six years old, married, a native of Ireland, was admitted to the medical ward, April 14, 1892, at about 9.45 A.M., from the outwards, where she had lived for more than three years. She had been complaining of a feeling of weakness and sickness and constipation. For forty-eight hours the temperature ranged between 99° and 101°, and there were no decided symptoms. Magnesium sulphate was given to produce catharsis, and tonics were administered. Subsequently it was observed that the skin and extremities were cool; the pulse was imperceptible at the wrist, but 110 beats per minute could be counted in the carotid; the temperature was 99° in the mouth; the respirations were 36. The face was cyanosed; the neck and shoulders mottled; the lips and nails blue. The patient was perfectly conscious and stated that she felt weak and sick, but had no pain at all. External heat, stimulants by the mouth and hypodermatically were tried, with but slight and transient benefit. The cyanosis deepened, the weakness became more marked, and death took place at 11.25 A.M., the woman retaining consciousness long after the power of speech was gone and almost until death. The urine, withdrawn by catheter, presented no abnormality.

At the autopsy the woman appeared older than her recorded age. The body was fairly well nourished. Post-mortem lividity was of a peculiar crimson, resembling the glow of health, and not as diffuse as usual; the area of white spots was larger than usual. On the conjunctival surface of the edge of the right lower eyelid, near the internal canthus, was an ecchymotic spot as large as a pin-head. There was a dark hepatic eruption on the lips and alæ nasi, without ecchymotic spots.

On the labia majora there was a profuse herpetic eruption, with much ecchymosis under the epidermis. There was no discoloration of the mucous membrane of the vagina.

The abdominal cavity contained a quart of thick, bloody sero-purulent fluid, which was present in all of the various pouches.

The serous surfaces of the abdominal walls and intestines were markedly congested, with much ecchymosis showing through the peritoneum.

The liver was normal in size and showed small ecchymotic spots over the whole surface.

The gall-bladder contained five drams of yellowish bile.

The pancreas contained numerous small hemorrhages. The spleen weighed six ounces. The capsule was thickened and dark, and stripped off readily. Its inner surface was markedly hemorrhagic. There was a hemorrhagic infarct one inch in diameter in the lower border, and other smaller ones were distributed throughout the pulp.

The left kidney weighed two and three-quarter ounces; the right, four ounces. The capsules stripped off with difficulty; the cortices were diminished.

The substance of the kidney was anemic and presented numerous hemorrhagic spots throughout the cortex. The stellate veins were markedly congested and hemorrhagic, the spots on the surface dipping down three-eighths of an inch into the substance of the kidney. The right kidney was softer than the left, and presented a greater degree of hemorrhage in the pelvis, but possessing the same characteristics as the left.

A large hemorrhage was seen under the peritoneum of the esophageal extremity of the stomach, extending

posteriorly. About two inches from the pylorus were two papillomatous growths, with a slight depression between them, and seeming to originate in the mucous membrane. The walls of the stomach were otherwise smooth; some hemorrhagic spots were seen, particularly at the esophageal extremity.

The ovaries and fimbriated extremities of the tubes were hemorrhagic. The mucous membrane of the intestines contained many ecchymotic spots as large as pin-heads.

The pericardium was congested and ecchymotic, and contained two drams of bloody fluid.

The heart was flabby and contained fluid blood of a deep crimson color and chicken-fat clots in both ventricles. The blood had no peculiar odor.

The endocardium was deeply stained after washing, and contained many ecchymotic spots.

The right lung was adherent to the parietal pleura. A small amount of bloody fluid was present in each pleural cavity.

The pleuræ were congested and ecchymotic throughout.

The lungs were emphysematous, edematous, and dark.

The brain was not examined.

MEDICAL PROGRESS.

Hernial Protrusion of a Ureter in the Inguinal Canal.—REICHEL (*Archiv. für klin. Chirurgie*, B. xxiv, H. 2, p. 431) has reported the case of a boy, seven and a half years old, who for four and a half years had presented a tumor in the right inguinal region, extending into the scrotum, increased by cough and disappearing when the recumbent posture was assumed. For four years a truss had been worn; the tumor had, nevertheless, progressively increased in size. The mass was longitudinally oval and about as large as a hen's egg. It was readily though not entirely reduced by taxis, a small hemispherical mass, perhaps as large as a hazel-nut and of soft consistence, remaining unreduced. The finger readily passed through the inguinal canal into the abdominal cavity. The columns of the canal and the abdominal walls were relaxed; there was a moderate diastasis of the recti muscles. The overlying skin was normal. Both testicles were present in the scrotum; the right testicle appeared to be adherent to the hernial sac, with the reposition of which it moved slightly upward. Herniotomy being undertaken, it was found that the swelling was occasioned by a dilated and tortuous ureter, narrowed below by a stricture and communicating above with a hydronephrotic sac. The tube was divided, its lower portion being ligated while the upper was sutured in place, so that a ureteral fistula remained. It was afterward decided to remove the ureter and the corresponding kidney. This was accomplished through an incision extending from the tip of the eleventh rib to the upper angle of the primary incision. The patient recovered, a transient polyuria manifesting itself. The extirpated sac had a capacity of about two quarts. It was surrounded by a layer of renal tissue about three-quarters of an inch thick. Microscopically the renal structure presented little change. It is thought that at some previous period ulceration of the ureter had taken place as the result of the presence of a calculus, with cicatricial narrowing and the secondary development of the hydronephrosis.

Spontaneous Rupture of the Spleen.—BOWIE (*Lancet*, No. 3603, p. 659) has reported the case of a tall, strong, finely-built cavalry soldier, thirty years old, in Africa, who, having a morbid dread of African fever, determined to return to his home in Scotland. He had had several attacks of fever, and was again seized. The patient was exceedingly anxious about himself, and suffered much from fear. The spleen was slightly enlarged. Following a chill and before the hot stage set in, the man complained of severe pain, which he referred to his heart. The patient failed to sleep during the night. Retching was constant, a little greenish-yellow fluid being occasionally brought up. In addition to the pain referred to the heart, there was also pain in the loins and an inability to pass urine, notwithstanding a desire to do so. The bowels had been moved twice, the stools consisting of a little dark-colored fluid. The expression was anxious, the face dirty-gray, the features somewhat pinched, the lips livid and pale, the eyes clear and the pupils dilated. The patient complained of intense thirst. There was pain in both hypochondria. The pulse could be felt, but not counted; the heart-sounds were faint and indistinct. The abdomen was tense above the umbilicus, but below it was soft and could be manipulated without pain. Pressure in the hypochondria elicited pain, in the greater degree upon the left. By means of the catheter an ounce of dark-yellow, slightly turbid urine was withdrawn from the bladder; chemical tests disclosed the presence of albumin. Under stimulation the patient rallied slightly, but death finally set in. When the abdomen was opened, a large mass of liquid and clotted blood was brought to view. This had evidently been poured out from the spleen, the capsule of which was found to be ruptured, although the organ was scarcely larger than normal.

The Hematemesis of Anemic Young Women.—HANDFORD (*British Medical Journal*, No. 1655, p. 623) expresses the conviction that in numerous cases of hematemesis in anemic young women the hemorrhage takes place from ruptured capillaries or small venules, in the absence of actual ulceration. The influences that lead to rupture are fatty degeneration of the walls of the vessels, increase in the vascular tension and venous stasis from dilatation of the right side of the heart. Under such conditions it is the anemia, the constipation, and the feeble heart that require attention. The best guide in the dietetic treatment of cases of hematemesis is the state of irritability of the stomach, as indicated by the pain and vomiting. If both of these manifestations are absent a case of gastric ulcer may be treated safely and wisely on the same lines as a case of hematemesis apart from ulceration. If hyperacidity, as indicated by the occurrence of pain from half an hour to an hour after the taking of food, or as determined by chemical tests, is properly overcome by the administration of alkalies, a moderate amount of light food in a fine state of division may safely be given, even in case of gastric ulcer. If hematemesis is due to anemia, digitalis need not be given as long as the patient remains in bed, but if on arising the right heart is yet dilated and cardiac murmurs

are to be heard, the administration of digitalis is indicated.

A Peculiar Occupation-neurosis.—TRANJEN (*Berliner klin. Wochenschr.*, No. 33, p. 838) has reported the case of a military officer, twenty-seven years old, who presented a peculiar spasmodic action of the muscular apparatus of the left eye. Whenever the head was turned to the right and an attempt was made to turn the eyes still further to the right without moving the head, the superior oblique and the internal rectus of the left eye contracted in tonic spasm, creating an appearance as if the eye were fixed in the upper inner angle of the orbit. As long as the head maintained its position, the left eye failed to react to impulses of the will and in association with movements of the right eye. To overcome the spasm the patient had to turn the head toward the left to the middle line and alternately close and open the eye. The ocular apparatus was normal in all other respects. The patient presented no other evidence of disease. The manifestation was attributed to the repeated turning to the right of the head and eyes for a considerable period in the course of military exercises.

Aneurism of the Basilar Artery in a Boy Seven Years Old.—OPPE (*Münchener medicin. Abhandlung*) has reported the case of a boy, seven years old, who when three years old received a self-inflicted blow upon the head from a hammer. Considerable hemorrhage ensued, but the child apparently recovered perfectly. Four years later, pains appeared in the abdomen, at the nape of the neck, radiating in the length of the spine and in the throat. The breathing assumed the Cheyne-Stokes character; the action of the heart became irregular. There was some spasm of the extremities. Subsequently there appeared sopor, headache, and cardiac arrhythmia, death finally taking place. At the autopsy the basilar and the vertebral arteries were found the seat of aneurism. There were besides intermeningeal hemorrhage, internal hydrocephalus and pleural adhesions upon the left.—*Internationale klin. Rundschau*, 1892, No. 34, p. 1404.

A Case of Amenorrhea with Galactorrhea.—WEBER (*St. Petersburger medicin. Wochenschr.*, 1892, No. 33, p. 320) has reported the case of a woman, thirty-five years old, who had menstruated regularly from her thirteenth year, and who, though married for twelve years, had never been pregnant. For three months menstruation had been absent, without known cause, while the breasts had become enlarged. On account of the sense of pressure and tension, the breasts were expressed, from four to six ounces of milk being obtained daily from the right and twice as much from the left breast. The patient complained of no other symptom. The breasts were well developed. The uterus was small and atrophic, but otherwise normal and freely movable. The adnexa were normal. A small area of tenderness was present in the region of the third or fourth dorsal vertebra.

Successful Evacuation of an Abscess of the Frontal Lobe.—ZELLER (*Berliner klin. Wochenschr.*, 1892, No. 34, p. 860) has reported the case of a girl, thirteen years old, in whom a phlegmonous process developed in the right orbit after an attack of influenza. An incision gave vent to pus and afforded temporary relief. Soon, however, symptoms of cerebral irritation appeared, with severe vomiting and intense headache. Paralysis of cranial nerves was wanting, but injection of both optic discs and blurring of the left papilla appeared. The headache, which had been general, became localized to the right frontal region close to the middle line. The pain was intensified by percussion, but uninfluenced by puncture or pricking of the skin. The pulse was slowed. Finally, neuro-retinitis and choked disc with hemorrhage developed upon the left, while upon the right the vessels were injected and the papilla only blurred. At no time had there been fever or derangement of consciousness. By means of a trephine a disc of bone was removed from the right half of the frontal bone close to the middle line. The dura did not pulsate. A needle plunged into the anterior portion of the right frontal lobe disclosed the presence of white, creamy pus, of which about two ounces were evacuated. Pulsation at once set in and aided in the rhythmic expulsion of the contents of the abscess through the drainage-tube. The latter was progressively shortened and finally removed, the patient ultimately recovering perfectly.

Ovariotomy During Pregnancy.—From a study of 135 cases in which pregnancy was complicated by the existence of a tumor of the ovary, and in almost all of which ovariotomy was performed, DSIRNE (*Archiv f. Gynäkologie*, B. xlii, H. 3, p. 415) concludes that such a complication is always to be considered as a serious matter, demanding, with but rare exception, the extirpation of the tumor. The further advanced the pregnancy, the more dangerous the condition, both for mother and fetus. Puncture of an ovarian cystoma and the artificial interruption of pregnancy are to be considered only as emergency procedures. Ovariotomy yields the best results for the mother if performed in the second, third, or fourth month of pregnancy; for the fetus if performed in the third or fourth month. If for any reason early ovariotomy is not possible, the operation should be performed subsequently, as good results are to be expected.

A Large Osteo-sarcoma of the Humerus Successfully Removed.—MARSH (*Lancet*, No. 3603, p. 662) has reported the case of a laborer, forty-nine years old, who ten years previously had noticed a hard, bone-like swelling on the anterior aspect of the arm close to the shoulder-joint. In the course of two or three years the mass had reached the size of an orange, its growth subsequently remaining stationary for six or seven years. Then there was a progressive increase in size, until the arm measured twenty-five inches in circumference. The growth was considered to be a subperiosteal sarcoma, and its removal was decided upon. The subclavian artery was first tied in the third part of its course, and the extremity was removed at the shoulder. The patient bore the operation well. There were no complications.

Control of Hemorrhage from a Ruptured Middle Meningeal Artery.—STROKE (*Berliner klin. Wochenschr.*, 1892, No. 34, p. 860) has reported the case of a man upon whose head a brick fell from a height of four stories. Consciousness was lost and symptoms of compression

appeared: irregularity of respiration, convulsions, tension and slowing of the pulse and dilatation of the right pupil. A wound of the scalp behind the right parietal eminence and a fissure of the bone were found. A diagnosis of hemorrhage from the middle meningeal artery was made and trephining undertaken. A large extravasation of blood was found between the dura and the bone, with the continuance of hemorrhage. The opening in the skull was enlarged and the bleeding-point found. The ligatures would not hold, so that hemostatic forceps had to be applied. These were removed at the expiration of two days, and the hemorrhage did not recur. Immediately after the operation the right pupil was contracted. The patient recovered, some headache, however, persisting.

Infarct of the Heart.—At a meeting of the Société Médicale des Hôpitaux, Laveran (*La Médecine Moderne*, No. 29, 1892, p. 471) presented the heart of a man, fifty-four years old, who had died suddenly in consequence of the occurrence of an infarct of that organ. The man was seized during the night with a feeling of great anxiety and a tendency to collapse. Dyspnea was marked, but no lesion of the heart or lungs could be detected. The patient responded to treatment with caffeine and cupping, only to succumb to another paroxysm a short time later. At the post-mortem examination a limited area of the myocardium of the left ventricle was found hemorrhagic, together with the appearances of abscess-formation. The aorta was atheromatous. One of the coronary arteries was healthy; the other was occluded by a clot red throughout the greater part of its extent, but white at a point of division.

THERAPEUTIC NOTES.

For Hyperidrosis of the Feet.—

℞.—Naphthol. . . . . gr. xxij.
Glycerin . . . . . gr. xlviij.
Alcohol . . . . . ʒj.—M.

S. Apply night and morning; then dust of the following:

℞.—Pulv. naphthol. . . . gr. v.
Pulv. amyli . . . . ʒj.

Every morning.

One may also dust the stockings with:

℞.—Sodii salicylat. . . . gr. iv.
Potassii permanganat. . . gr. vj.
Pulv. talc. . . . . ℈iv.
Bismuthi subnitrat. . . ʒiss.—M.

KAPOSI, *La Semaine Méd.*, No. 46, 1892.

Subcutaneous Injections of Sodium Phosphate in the Treatment of Diseases of the Nervous System.—At a recent meeting of the Académie de Médecine, CROCQ (*Bulletin de l'Acad. de Méd.*, 1892, No. 37, p. 439), presented a paper of which the following are the conclusions: The subcutaneous injection of a solution of one-fiftieth of sodium phosphate in cherry-laurel water produces no reaction, local or general. At first daily injections of 15 minims may be given; subsequently 45 minims are injected on alternate days. In cases of disease of the nervous system the results produced are curative or palliative: curative in cases of functional disturbance, palliative in cases of organic disease.

For Acute Coryza —

℞.—Menthol. . . . . gr. iij.
Acid boric. pulv. . . . . ʒj.
Benzoini pulv. } . . āā ʒjss.—M.
Bismuthi subnitrat. }
Ft. pulv.

S.—A pinch to be snuffed five or six times daily.

L'Union Méd., No. 93.

For Fissured Nipples.—

℞.—Olei olivæ . . . . . ʒss.
Ichthyol. . . . . ʒij.
Lanolini } āā . . . ʒijss.—M.
Glycerini }

S.—Apply topically.

OEHREN, *Journ. de Méd. de Paris.*

For Erysipelas.—

℞.—Powdered tannin } . . 1 part.
Powdered camphor }
Ether . . . . . 8 parts.—M.

S.—Apply with a brush every two hours.

Rev. gén. de Clin. et de Ther., No. 35.

For Asthma.—

℞.—Ammonii iodidi . . . . ʒij
Ammonii bromidi . . . ʒiij.
Tinct. lobeliæ . . . . fʒj.
Syrup. tolutan. . . . . fʒij.—M.

S. A teaspoonful every two or three hours.

BARTHOLOW.

For Cystitis.—

℞.—Acid. oxalic. . . . . gr. xv.
Syrup. aurantii . . . . ʒj.
Aquæ destillat. . . . . fʒiv.—M.

S.—A tablespoonful three times a day for two days.

RENAUD, *Journ. de Méd. de Paris*, 1892, No. 38.

Prophylactic Treatment of Angina Pectoris.—When angina pectoris occurs in persons with congested face, as a manifestation of aortitis or of arterio-sclerotic myocarditis, LIÉGOIS (*Gaz. hebd. des Soc. Méd. de Bordeaux*) prescribes night and morning during the last ten days of each month thirty drops of the following combination (sodium iodide being given during the previous twenty days):

℞.—Tinct. veratri viridis . . . fʒjss.
Tinct. aconiti . . . . . fʒij.
Tinct. piscidiæ erythrinæ . . fʒjss.—M.

Gaz. Méd. de Nantes, 1892, No. 11.

For Asiatic Cholera,—

℞.—Cocainæ hydrochlorat. . . . gr. ½.
Acid. hydrochloric. } . . āā ♏v.
Tinct. opii }
Aquæ destil. . . . . fʒviss.
Syrup. simpl. . . . . ad fʒj.—M.

S.—A tablespoonful in ice-water, at first every hour and subsequently every second hour.

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A WEEKLY JOURNAL

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SATURDAY, OCTOBER 15, 1892.

THE TREATMENT OF CHOLERA.

CHOLERA is subsiding, and it is not likely that this country will this year experience a visitation of the dread scourge. It is most probable, however, that next spring and summer will witness a renewal, let us hope not a magnification, of the outbreak now about coming to an end. The subject is withal such an important one that we cannot refrain from presenting at this time a summary of a valuable contribution by CANTANI (*Berliner klin. Wochenschr.*, No. 37, 1892, p. 914), who adduces numerous facts confirmatory of the utility of the method of treating cholera that goes by his name, and advances the *rationale* of its mode of action. In cases seen early the mortality is practically *nil*, while in the cases that come under observation in the later stages of the disease the mortality is reduced to surprisingly and encouragingly low figures.

In some epidemics the greatest danger that threatens the patient seems to depend upon the loss of the watery elements of the blood, and a resulting deficiency of oxygen; while in other epidemics death seems to take place in many cases from the acute intoxication of the cholera-poison. In all epidemics, however, cases of both kinds are encountered. The indications for treatment thus are: to limit the proliferation of the cholera-bacilli in the bowel; to neutralize the poison that has been produced; to speedily eliminate from the blood the poison that has already been absorbed; and to overcome the thickening of the blood. An additional symptomatic indication is to supply artificial heat.

It has been abundantly demonstrated that the first two indications are admirably, and the others less completely, met by the repeated introduction high up into the bowel of from three to four pints of water or infusion of chamomile, containing from seventy-five grains to five drams of tannic acid, and from thirty to fifty drops of tincture of opium, and at times with from an ounce to an ounce and a half of gum arabic, at a temperature of from 100.4° to 104° (*enteroclysis*).

On practical and pathogenetic grounds cholera is divided into three stages: the initial stage, frequently called the stage of premonitory diarrhea; the attack proper, or the developed disease; and the stage of reaction, improperly called cholera-typhoid.

The first stage is characterized by the rapid and enormous development of the cholera-bacilli, with the generation and absorption of the poisonous products of their activity. The therapeutic indications of this condition are met by enteroclysis. It has been experimentally shown that tannic acid is actively antagonistic to the life of the cholera-bacillus, while it at the same time neutralizes the products developed by the activity of the organism. Besides, the injections impart an acid reaction to the otherwise alkaline contents of the intestine, aid in clearing the bowel mechanically and retard or prevent toxic absorption by virtue of their astringency. The earlier the treatment is instituted the better. In times of epidemic the treatment should be employed in even doubtful cases; no harm can result, and the greatest amount of good may be accomplished.

In the second stage of the disease, that of the developed attack, the indications are to overcome the thickening of the blood and to eliminate the toxic matters already absorbed into the circulation. These indications are best met by *hypodermatoclysis* or subcutaneous infusion; the introduction into the cellular tissues beneath the skin of two pints of sterilized water, containing a dram of sodium chloride and forty-five grains of sodium carbonate, at a temperature of from 100.4° to 104°. During this stage enteroclysis is to be kept up. The injections are best made in the ilio-costal

regions, in the groins, between the scapulæ or in the gluteal regions. The injections should never be made in the region of the neck. By introducing two needles the process is facilitated, while the distribution of the fluid is at the same time accelerated.

In the third or reactionary stage the indication is to eliminate the excrementitious and noxious and toxic matters that have accumulated in the tissues. This is admirably met by the continuance of hypodermatoclysis and of enteroclysis with tannic acid or with hydrochloric acid, from forty-five to seventy-five minims to the quart of warm water, or with sodium chloride, from two and a half to four drams to the quart of warm water.

The procedures here outlined constitute the basis of the treatment. Complications and special symptoms are to be treated as the indications may warrant. The method posseses the advantage of simplicity. No great skill is required in its application. In times of epidemics ordinary assistants or members of the patient's family can be readily instructed in carrying it out. Neither is the apparatus required complex, cumbersome, or expensive. Finally, the innocuousness of the treatment is a strong point in its favor.

ANTISEPTIC SYMPHYSIOTOMY.

THE success of the Cesarean section and amputation of the pregnant uterus has divested these procedures of novelty, and made them familiar surgical expedients. It seems now in order to revive the procedure of symphysiotomy, and to endeavor to find in this a way of avoiding the disadvantages of other procedures whose object it is to save the lives of mother and child in otherwise impossible labor.

The home of symphysiotomy has been in Italy, where MORISANI and others have continued to practise it; their work has been overshadowed by the brilliant success of PORRO and other abdominal surgeons. Among recent contributions to the literature of the subject are several papers from the French, among whom CHARPENTIER has given the matter careful attention. He is inclined to regard the operation as indicated in contracted pelves not sufficiently deformed to forbid the successful practice of version or the use of forceps. The true conjugate of these pelves should measure from three and a third to two and three-fourths inches. In many of these cases induced labor terminated by symphysiotomy, version, or the use of forceps, has given good results. Among other reports, that of SPINELLI is of interest; in twenty-four operations, all of the mothers recovered, and twenty-three of the children. Antiseptic precautions were carefully employed, the cutaneous incision was closed with catgut, and dressed with bichloride gauze. After delivery the patient had daily three vaginal douches of solution of mercuric chloride, at first one to two thousand, afterward one to four thousand. The pubic joint was usually firmly united in from four to six weeks. During that time the patient remained in bed, wearing a firm bandage about the pelvis. No case of permanent non-union is reported, the joint, as a rule, becoming strongly knit together.

The preference of abdominal surgeons who are successful in the Cesarean operation will remain in favor of that procedure in contrast with symphysiotomy. The greatest need in obstetric surgery, at present, is some method of procedure by which labor can be successfully terminated in contracted pelves without destroying the life of mother or child, a method available amid the surroundings of ordinary obstetric practice. In a well-appointed hospital, or with the coöperation of one or two intelligent colleagues, the Cesarean operation will always give brilliant results, but if symphysiotomy in connection with induced labor, version, and the use of forceps, shall prove a resource which the individual practitioner of obstetrics can employ unassisted by professional help, it certainly will find a field of usefulness. It seems applicable to just those cases in which it is often difficult to decide that an abdominal delivery is absolutely necessary. Further experience must decide the merits of the case, but we shall await with interest the accumulating experience of obstetricians upon this point.

THAT progress is sometimes made by leaps is well illustrated by the history of symphysiotomy. Less than four weeks ago DR. ROBERT P. HARRIS, of Philadelphia, read a paper before the American Gynecological Society, at Brooklyn, on "The Remarkable Results of Antiseptic Symphysiotomy" (see THE MEDICAL NEWS, October 8, 1892, p. 416), from which it appears that the operation has in recent times scarcely been performed outside of Italy. The meeting had, however, scarcely adjourned before the opportunity presented itself, and the operation was performed for the first time in America, with the death of the child in consequence of the protraction of labor. A few days later the oper-

ation was performed for the second time in America, with a happy outcome for both mother and child, and THE NEWS takes great pleasure in presenting in another column (see page 431) the report of this case. The news of the first two cases had scarcely spread before a third operation was performed, likewise with a successful result. Is evidence wanting that American surgery is progressive? Philadelphia can well feel proud that two of the cases were in the hands of Philadelphia operators and that both terminated favorably. Who shall say when the limits of antiseptic surgery shall have been reached.

"CELIOTOMY" VERSUS "LAPAROTOMY."

WHEN one says that he has performed a *laparotomy*, or sends a report stating that he has had ten successful *laparotomies*, he no doubt believes that he has properly applied an old compound Greek term consisting of *lapara*, the abdomen, and *tomæ*, to cut. The term is employed, as it is by hundreds in England, France, Italy, Germany, and many other countries, without question and without examination of a proper authority to find out whether the Greek anatomists called the abdomen a "lapara," or gave it some other title. If an English version of the New Testament be consulted, the word *belly* will be found in ten places. The Greek original will surely give its proper synonym: in all of the references the word is in every instance "*koilia*."

"Strange!" it will be said; "how is this?" On consulting a Greek Anatomy, and turning over the pages of RUFUS of Ephesus, who wrote in the second century A. D., this sentence will be found: "The *omphalos* (navel) is the hollow which occupies the middle of the *koilia*, where we cut the veins that nourish the fetus; the middle part of the hollow is the *akromphalon*" (top of the navel). Here RUFUS distinctly states that the belly was called *koilia*, not *lapara*.

"But there is a term *lapara* in Greek, surely?" Certainly. In old Greek, before there were anatomists, it meant a *hollow*, and they applied it to the *hollow of the waist*, or the flank. Old lexicographers and medical authors relate that the term *lapara* was applied to "the parts between the short ribs and the iliac bone." A laparotomy, then, is an incision of the flank, *e. g.*, a *laparo-colotomy*. The lapara was a hollow, and never a convexity.

"If *koilia* is the Greek word for belly, how is it that the whole world has gone so far astray in its nomenclature? Who started the misapplication of the term laparotomy?" We reply that it originated in 1811, in the thesis of a Wittenberg medical student of the name of FIEDLER, who had witnessed a true laparotomy performed upon a man of fifty that had a diseased colon, as he lay upon his right side, on October 17, 1810. Six years later FIEDLER again wrote, and coined such distortions as "laparo-gastrotomia," "laparo-raphia," and "laparo-hysterotomia." He appears to have designed to substitute for the word *gaster*, which really meant the belly, the word lapara, which a better knowledge would have taught him was not of the same meaning.

Koilia being the Greek word for abdomen, the synonym for the old meaning of gastrotomy will be "celiotomy" (*se-le-otomy*). We have a great many *celios* in our medical dictionaries, and one of them, "celio-paracentesis," or tapping the abdomen, is very near in its character to celiotomy, which indicates a larger wound. PROF. MAX SÄNGER, of Leipzig, has adopted the term *kœliotomie*, and MR. J. GREIG SMITH, in his work upon Abdominal Surgery, has adopted *cœliotomy* in his last edition. While we cordially welcome the new term—for the revival of which much credit is due to DR. R. P. HARRIS, of Philadelphia, we shall, in harmony with the orthography adopted by THE NEWS, spell it without the diphthong, thus: celiotomy.

Laparotomy in its misapplication appears to have a wonderfully tenacious hold upon the habit of use, even with men who have learned that it is improperly employed. They say it without thinking, just as a wagon-wheel slips into the old rut when the driver is not careful in holding the reins. We hope in time to overcome the error; but, as it has had eighty years of growth, we cannot expect to do so in a few months. We should, however, take a decided stand against the misapplication of terms in our science.

NEW ENTERPRISES.

A NOVEL example of financial enterprise on the part of newspaper and doctor is that of a pushing couple in a New England city. It seems that the daily paper had found the plan of free legal advice by "its lawyer" to work so well, that it has added a "physician's column, in which medical advice may be had for the asking."

"For this responsible position *The Mirror* has secured the services of one of Manchester's brightest

young physicians, a graduate of Harvard Medical College, one who belongs to the new school of physicians, whose faces are turned toward the morning, and who are not so bound down by tradition or prejudice that they will allow a patient to die rather than to administer medicines not countenanced by the particular school of which they happen to be a member. In other words, his highest desire is to save life, even if he has to smash some theories in doing it.

"*The Mirror* believes that its physician's column will prove a highly popular one. The identity of all inquirers will be preserved an absolute secret, and everybody who is sick or ailing or desires information can address "*The Mirror's* Doctor," care of *The Mirror*, and be sure of receiving a prompt, unequivocal, and lucid answer. *Send in your queries.*"

And why should it not be so? In Philadelphia papers there are now appearing full column advertisements of two charitable hospitals soliciting patients, and setting forth the advantages of each institution, the prominently displayed names of the visiting physicians of course not forgotten. To be sure, the hospitals are supported and the advertisements paid for by the gifts of kind people, who foolishly suppose that needy sufferers are seeking relief, instead of needy relief advertising for sufferers.

REVIEW.

THE ESSENTIALS OF HISTOLOGY, DESCRIPTIVE AND PRACTICAL. FOR THE USE OF STUDENTS. By E. A. SCHÄFER, F.R.S., Jodrell Professor of Physiology in University College, London; Editor of the Histological Portions of Quain's "Anatomy." Third Edition, Revised and Enlarged. Illustrated by more than 300 figures, many of which are new. 8vo, pp. vi., 302. Philadelphia: Lea Brothers & Co., 1892.

SYSTEMATIC in arrangement, judicious in selection of material, concise and lucid in description, this book eminently fulfils its purpose. It is beginning to be recognized that books for students constitute a class in themselves, and must be written with especial reference to the needs of their readers. Thus there is growing up a student's library, composed of books written by teachers of experience and comprehensive knowledge, treating of essentials with fulness and clearness, but omitting a multiplicity of details that could only serve to confuse. Such books are not "examination aids," but study-helps. The book before us has reached a third edition, a fact that proves its usefulness to teachers and students both. It is a book for the laboratory, to be referred to while studying specimens under the microscope. Especially to be commended are the sections on the nervous apparatus. To the practitioner whose student days on the benches were passed before modern methods had been introduced, the book will prove useful in refreshing his knowledge and introducing him to some of the most recent advances in histologic investigations. The illustrations are of exceptional merit.

SOCIETY PROCEEDINGS.

AMERICAN GYNECOLOGICAL SOCIETY.

Seventeenth Annual Meeting, held in Brooklyn, September 20th, 21st and 22d.

(Continued from page 418.)

SECOND DAY—SEPTEMBER 21ST.

DR. CHARLES P. NOBLE, of Philadelphia, read a paper on "Certain Aspects of Gonorrhea in Women." He related the case of a woman, free from genital catarrh, who contracted gonorrhea of the cervix and vulvo-vaginal gland, with little, if any, involvement of the vagina, the disease extending to the tubes and causing a large collection of pus within the peritoneum.

Dr. Noble emphasized the chronicity of gonorrhea. He stated that he had never seen a case of gonorrheal salpingitis that terminated in a perfectly natural cure with a functionally active tube. In connection with the likelihood of the second tube and ovary becoming infected if one were removed for disease, he advised extirpation of the sound appendages also in elderly women, allowing younger women to decide for themselves whether they would submit to the dangers of a second operation.

DR. EDWARD P. DAVIS, of Philadelphia, read a paper entitled "Retro-peritoneal Tuberculosis Simulating Hernia." He reported the case of a woman who complained of pain in the right inguinal region after having lifted a heavy weight. She was kept in bed eleven weeks, during four of which she had metrorrhagia. On recovering, she resumed her work as a domestic, but some time afterward she was again seized with severe pain in the right ovarian region. On examination the abdomen was found moderately distended, while there was a swelling in the right inguinal region resembling a hernia; the temperature ranged from 100° to 102.5°; the pulse was rather rapid. The family history was good, except that the father had died of tuberculosis. It was believed that the woman had a hernia or tubal disease. The tumor was cut down upon, the resemblance to a hernia persisting during the section of the sac. It was, however, utterly impossible to reduce the tumor; as the patient was about to pass into collapse, the abdomen was hastily opened in the median line; while the finger was engaged in an effort to return the mass it penetrated an abscess containing several ounces of pus. The pelvic peritoneum was thickened and engorged, and in the hypogastric region was a commencing peritonitis. It became evident that the disease had its origin behind the peritoneum, and must have been tuberculous, although tubercle-bacilli were not found in the pus. The patient made a good recovery and has shown no other signs of tuberculosis.

DR. EGBERT H. GRANDIN, of New York, read a paper entitled "Accouchement Forcé in Certain Obstetrical Complications, with Remarks on the Treatment of Post-partum Hemorrhage." He related the case of a multipara, eight months gravid, who had hemorrhage,

for the control of which a tampon had been introduced into the vagina. The condition growing alarming, the tampon was withdrawn and the whole hand introduced. The cervix was found one-eighth dilated, the margin of the membranes presenting. The margin of the placenta was separated, the finger introduced, thirty minutes being required for dilatation; then bi-polar version was performed, the fetus extracted, the placenta removed, and the patient thus spared all further loss of blood; the uterus was packed with gauze. Recovery was satisfactory. A similar mode of procedure was resorted to in a case of uremia, threatened or actual, and of disproportion between the size of the pelvis and the fetal head, with satisfactory results.

Dr. W. H. Parish, of Philadelphia, stated that he understood by *accouchement forcé*, rapid delivery through an undilated and undilatable os, and that while he, with others, favored rapid delivery under certain conditions, he thought one should first secure sufficient dilatation, as otherwise the procedure would be attended with immense risks to the mother. He had been called to one case in which the uterus had been ruptured by version and *accouchement forcé* for placenta previa with hemorrhage.

Dr. Willis Ford, of Utica, related three cases of uremic convulsions, in which he had brought on dilatation, and, instead of turning, applied the high forceps, delivering living children and saving the mothers, although in one or more severe laceration occurred.

Dr. Edward P. Davis, of Philadelphia, stated that to bring on dilatation of the uterus before the natural time, a good deal of experience is required in order to avoid serious accident. In treating cases of placenta previa, in which dilatation and emptying of the uterus are desired, the use of a tampon of iodoform-gauze, alternated with hot douches, had, in his hands, proved a successful method. In practice, the insertion of gauze into the uterus, after emptying the organ, had also proved to be an efficient and unobjectionable procedure.

Dr. John Byrne delivered the "President's Address." He deprecated the too frequent resort of surgeons, through the beneficent but seductive agency of antiseptics, to dangerous and mutilating operations on the sexual organs of women, and deplored the specular examination of young and unmarried women without due cause.

Dr. Byrne took for his theme the surgical treatment of carcinoma of the uterus, and the prevailing disposition on the part of many to disregard all means of relief save one—a dangerous, mutilating, and comparatively fruitless proceeding. He emphasized the fact that although experience and skill are essential in hysterectomy, they are not the only factors to be considered in accounting for results. He called attention to the great number of hysterectomies that have been performed, many with such fatal results, and stated that it seemed as if one might imagine nowadays that any proceeding short of complete pelvic evisceration had long since ceased to be worthy of consideration.

He expressed unqualified disapproval of the doctrine that justified total removal of the uterus whenever carcinoma is discovered and proved to exist. Almost equally shocking is the practice of removing a large portion of the pelvic basin in order to attack the uterus posteriorly.

As amputation of the cervix in cases of carcinoma of the uterus, whether high or low, is worse than useless without cauterization, and as it is not free from danger, there are only two surgical measures to choose between to-day, namely: 1. High amputation, or exsection by the galvano-cautery, not only of all diseased parts, but as much more and beyond the supposed danger-line as can be safely taken away, followed by thorough dry-roasting of all exposed surfaces; or, 2. Vaginal hysterectomy, with its more attractive surgical glamor and ghastly record of lives shortened and even sacrificed on the altar of what has been miscalled "progressive gynecology."

In 400 cases of carcinoma of the uterus treated by means of the galvano-cautery no deaths resulted from the operation. In 40 of 63 cases of carcinoma of the *portio vaginalis*, 23 having stayed away, there was exemption from recurrence of from two to twenty-two years, being an average to each of over nine years. Of 81 cases in which the entire cervix was involved, 31 were lost sight of, 10 relapsed within two years, 5 had no recurrence for two years, 11 none for three years, 6 none for four years, 8 none for five years, 6 none for seven years, 2 none for eleven years, 1 none for thirteen, and 1 none for seventeen. This method of treatment for uterine carcinoma possesses two most important advantages: 1. Absolute freedom from danger, immediate or remote. 2. A longer respite from recurrence of the disease than has been afforded by hysterectomy.

The phenomena following operations for carcinoma of the uterus by means of the galvano-cautery are: 1. Absence of fever and of almost all pain, pelvic and peritoneal. 2. Almost universal immunity of the scar-tissue after cauterization from a second attack in event of recurrence of the disease; and 3. In the case of recurrence, the long respite obtained from reappearance of the disease in more remote parts, even in the more unpromising cases of circum-uterine infiltration.

Dr. H. J. Boldt, of New York, read a paper on "Vaginal Hysterectomy for Carcinoma of the Uterus." He expressed a preference for ligatures, especially of catgut, when it was possible to use them, but stated that in certain cases he had found it desirable, if not absolutely necessary, to use clamps, and so far as his own statistics showed, the one method appeared to be as safe as the other.

He emphasized the necessity for keeping well outside of the diseased tissue. It is not advisable to operate if one cannot remove all infiltrated tissue. Under such circumstances the patients do not live as long as if the operation had not been performed; while their suffering is greater, there remains some discharge and some hemorrhage which might be profuse; in short, the patients are worse than if total extirpation had not been done. It should not be forgotten, however, that an apparent malignant infiltration, causing immobility of the uterus, might in reality be due to a previous simple inflammatory exudate. In that event there should be no hesitancy to remove the entire uterus, although it might be immobile.

In some cases there is found a nidus of disease in the cervix separated from disease in the body of the organ by an isthmus of healthy tissue. As it is not possible to know before the removal of the uterus that the body of

the organ is not involved, as well as the vaginal portion, hysterectomy is to be recommended in all cases in which the extent of the disease does not contra-indicate the operation.

DR. JOSEPH JANVRIN, of New York, expressed the opinion that vaginal hysterectomy is justifiable in cases in which the cervix, the vaginal portion, or endometrium is involved, and in some cases in which the vagina alone is implicated he conscientiously believed that the disease was not of a malignant nature, and in them he was justified in removing the uterus. He had had three such cases in the past eight years, there having been no recurrence in any of them. In performing vaginal hysterectomy for uterine carcinoma he thought the same principles should govern as in carcinoma in other parts of the body.

DR. H. C. COE, of New York, stated that he would not perform complete hysterectomy in cases of commencing epithelioma of the cervix. He admitted that he had seen cases in which there was carcinoma in the body of the uterus that was entirely independent of carcinoma of the cervix, the former not being recognizable before operation. Small fibroids are also likely to undergo malignant change.

DR. W. GILL WYLIE, of New York, stated that he would be just as likely to remove a part of the breast for carcinoma as to remove a part of the uterus. Prior to the operation he renders the uterus perfectly aseptic by curetting and the douche.

DR. W. H. BAKER, of Boston, suggested that those who did hysterectomy for carcinoma of the uterus might find it an advantage to thoroughly sear the parts with the galvano-cautery, after as complete extirpation as possible.

DR. J. REEVES JACKSON, of Chicago, denied the propriety of removing the entire uterus for carcinoma.

DR. B. F. BAER, of Philadelphia, read a paper on "Supra-vaginal Hysterectomy Without Ligature of the Cervix, in Operations for Uterine Fibro-myomata," in which he described a new method of treatment of the cervix in supra-vaginal hysterectomy. He had thus operated in nine consecutive cases, with recovery in all. A tenth case resulted fatally, but not as a result of the method of operating.

The patient is preferably placed in the Trendelenburg posture. After the abdomen is opened a silk ligature is thrown around the broad ligament on one side, after which the tumor is to some extent separated from the uterus. The same step is taken on the opposite side. The knife is then run lightly around the uterus an inch or two above the peritoneal reflexion of the bladder in front and a little lower behind; the peritoneum is stripped down with the handle of the scapel to make flaps. The next step is to ligate the uterine arteries close to the cervix. The organ is then amputated at the cervix, leaving none of the supra-vaginal portion. When the cervix is dropped it recedes deeply into the pelvis and is covered over by the peritoneal flaps, which usually are not sutured together. Not a single ligature or suture is put into the cervix, as thereby all occasion for sloughing, which sometimes follows from the constriction of a ligature or suture, is avoided. In the cases thus treated there had been no hemorrhage, no sloughing, practically no rise in temperature, and no untoward result whatever; the cervical canal was not cauterized. In the tenth case death took place thirty-six hours after the operation, as a result of the action of the anesthetic, aggravated by a large goiter.

DR. WILLIAM M. POLK, of New York, read a paper on "Supra-vaginal Hysterectomy for Uterine Fibroids; Report of Fourteen Cases." He reported that he had performed total abdominal hysterectomy 21 times—17 for fibroma, 4 for procidentia. Of the former 2 died. As an operation, total extirpation of the uterus for fibroid disease presents no special conditions except in the matter of controlling hemorrhage. The vessels on the upper portion as well as the round ligament and the broad ligament of the uterus are secured in the same manner as are the vessels in other varieties of hysterectomy. The point of digression is reached at the cervix, in dealing with the vessels supplying the lower segment of the uterus. The arteries that are likely to give trouble, because of their anastomosis with the vessels above, belong to the vagina and to the posterior wall of the bladder. A ligature placed ouside the ureter would control all of them. A ligature placed around the vessel just ouside the utero-vaginal junction will certainly control all vessels inside the anterior vaginal. This would leave bleeding-points upon the stump dependent upon the return currents derived from the anterior and lateral vaginal. These leak so slowly that ample time is given to seize and ligate them.

The usual incision is made in the linea alba, extending well down to the symphysis. The ovarian vessels are then tied in position, the first ligation, if practicable, being made outside the ovary. A ligature or forceps is then applied about the same vessel well up against the uterus, to provide against the return flow. The upper parts of the broad ligament and round ligament are next tied; then the ovarian vessels are divided between the ligatures, and the uterus is cut free from the round ligament and broad ligament well down to the base, and lifted from its bed. If the tumor is large and unwieldy, a rubber ligature is thrown around it as low down as possible and the structure above cut away; if it is of reasonable dimensions the uterine vessel on each side is at once ligated and the uterus is then cut away from the vagina. Four long catgut sutures are then introduced, one passing through the anterior vaginal wall, thence to the edge of the peritoneum deflected from the bladder; another through the posterior wall and the cut edge of the peritoneum dissected from the back surface; one upon each side, placed so as just to bring the peritoneum together at the sides of the stump of the vagina, passing thence through the lateral vaginal wall. These sutures are each tied in position and then tied together in a knot, which is thrust into the vagina, seized with a forceps, and drawn well downward, thus turning in the peritoneal surfaces. The vagina is then washed out and packed with gauze, the packing in the majority of cases resting against the inverted peritoneum, but in some cases in which there has been much handling of tissues the gauze may be introduced between the folds. In the latter class of cases a glass drainage-tube is introduced to the bottom of Douglas's cul-de-sac from above. The abdomen is then closed; the drainage-tube is removed in from twelve to twenty-four hours; the gauze on the third day.

In procidentia the stump is not dropped, but is attached to the abdominal walls, to avoid the possibility of prolapse.

THIRD DAY—SEPTEMBER 22D.

DR. H. T. HANKS, of New York, read a paper entitled "Can we Prevent Secondary Hemorrhage after Ovariotomy?" He reported two cases, in one of which the patient died, and in the other life was saved by reopening the abdomen and securing the point of hemorrhage; it was necessary also to resort to transfusion. He related that three years earlier he had seen two cases in the practice of a friend, in one of which he himself reopened the abdomen, transfixed the pedicle, employed a saline solution and saved the patient's life.

If the tumor is large, after ligating the large artery the broad pedicle should be quilted in and out, so that the silk could not slip. In smaller pedicles the artery should, if possible, be discovered before transfixion; the transfixing needle is passed to one side of the vessel, which is then tied thoroughly. In the case of small pedicles it is necessary to be sure not to split the artery, or pedicle, by too much traction in tightening the ligature. In removal of the diseased tubes and ovaries, if diseased and imbedded in old adhesions, there will be only small arteries to deal with, and almost any well-tied ligature will hold. No special ligature was advocated; either silk or catgut will do, but it should be quite aseptic. If catgut is employed the first part of the knot should be made with one turn, the second part with two turns.

DR. A. P. DUDLEY, of New York, stated that he had known secondary hemorrhage to follow ovariotomy, which he thought was principally due to traction upon the ligature of one side while operating upon the tumor upon the opposite side. He always broke up the adhesions on both sides and freed the appendages and uterus before applying the ligature on either side.

DR. W. H. WATHEN, of Louisville, stated that he had lost two cases in his early experience by secondary hemorrhage after ovariotomy. In one the ligature had simply cut through the tissues, and in the other the vessels had ruptured. It is not of much importance what kind of suture is used if it is strong enough; nor how it is tied, if it is tied well.

DR. H. P. C. WILSON, of Baltimore, stated that he always touched the pedicle thoroughly with Monsel's solution of iron in order to mummify the stump and prevent slipping of the ligature.

DR. J. M. BALDY, of Philadelphia, stated that he always instructed the assistant who was holding the pedicle to slacken up just before the knot was tied. Before closing the abdomen he generally went back to the first side to see that everything was in proper order.

DR. EDWARD REYNOLDS, of Boston, read a paper on "The Value of the Forceps in Complicated High Arrest of the Breech, with a Report of Two Cases."

The first patient had been in labor thirty-one hours, with no progress during the last four hours. Under ether the os was manually dilated; the lower segment of the uterus was found closely applied to the child and somewhat thinned. It was thought that the passage of the hand above the constricting ring would be extremely difficult and dangerous, and the forceps was applied to the breech. One blade of the Vienna forceps was applied over the sacrum, the other over the posterior surface of the anterior thigh; axis-traction rods were added, and by two or three strong tractions the breech was brought into the pelvis. The forceps was then removed, but it being impossible to deliver the breech by traction with the finger, the instrument was reapplied without rods, when, with moderate traction, the breech was brought to the vulva and delivered by the finger. Without the forceps delivery could have been effected only by withdrawing a leg, which would have endangered rupture of the uterus. The child died after four days, of convulsions, from hemorrhage at the base of the brain, but there had been no injury to the body internally or externally as a result of the application of the forceps.

The second case was similar; the child lived.

The special point made by the author was that, had the hand been introduced and the leg brought down, rupture of the constricting thin section of the uterus would have taken place; also, that if the forceps had been applied higher on the body of the child some of the viscera would probably have been injured. The fingers should be repeatedly inserted to make assurance that the blades of the forceps grasp at the proper place.

DR. CHAUNCEY D. PALMER, of Cincinnati, read a paper entitled "What is the Best Management of Occipito-posterior Positions of the Vertex?" He defined a true posterior position as one in which the occiput was not only directed toward the sacro-iliac synchondrosis, but in which it impinged against the posterior inclined pelvic plane. Posterior position means slow engagement, slow descent, and possible non-rotation, or posterior rotation. Flexion of the head after dilatation of the cervix is not complete or persistent. No special difficulty occurs until the pelvic floor is reached. Labor is longer, and much greater force is required, because the distance which the occiput has to travel is greatly increased, and the shoulders and the whole of the fetus become impacted outside the uterus. Thus, while more *vis a tergo* is needed, less is afforded.

In diagnosis, early palpation of the abdomen and auscultation is as important as vaginal touch, and should also be utilized during labor. The treatment of most cases is simple, and will depend largely upon the particular stage of parturition at which the condition is recognized. If the case is seen early enough, the child should be rotated into the anterior position. If this is not successful, podalic version should be performed. The latter operation is especially indicated if the head is large and broad, or the pelvis contracted. The knee-elbow posture favors, by gravitation, the rotation of the fetus as a whole into the anterior position. In the second stage, the lateral decubitus corresponding with the direction of the posterior position favors rotation. If, however, the head should reach the perineum without rotating, the aim of the operator should be to promote and increase flexion by pushing the frontal bone in an upward direction, with two fingers during pains, generally pressing toward the mother's left; or the whole hand may be used. The forceps may still be necessary, rotation being left entirely to Nature. While the application of the forceps, made in a careless manner or at too early a time, may prevent anterior rotation, causing extension, the use of the instrument at this time is urgently called for. If the mother is in an exhausted condition and the child is dead, craniotomy offers the best chances for the mother. With the child alive, most obstetricians would very properly prefer the forceps.

DR. A. PALMER DUDLEY, of New York, read a paper on "Umbilical Hernia in the Female, with a Report of Five Cases." He described the method of treatment he employed, and claimed for it certain advantages over other methods. While a firm advocate of catgut in most operations, he prefers silver wire for retaining in coaptation the divided abdominal walls. The wire is used to support the strain, while the catgut may be employed as a continuous suture to make more accurate approximation. The silver-wire sutures are passed through a small rubber canula, which obviates the necessity for twisting them, and also serves for drainage. In all his cases he had succeeded in securing union with an almost entire absence of suppuration, and with no rise in temperature.

The fourth case was one of enormous ventral hernia, the cellular tissue being greatly atrophied; the vermicular action of the intestines was visible through the skin, and it seemed hazardous to operate. An incision nine inches long was made; the omentum was adherent along the entire line of the incision, and a large portion of it had to be removed. After cutting out an elliptic piece of the walls, they were drawn together as closely as possible and quilted by a continuous catgut suture. They were so much atrophied that it was almost impossible to get sound muscular tissue to cover in the hernia. In addition to the two rows of catgut, seven wire sutures were employed. The patient made a good recovery without accident, except for slight suppuration about two wire sutures.

The cases reported show that it is useless to treat umbilical hernia by mechanical appliances; to open the peritoneal sac is not dangerous, and it is preferable to returning the sack without knowing how many adhesions there might be between it and the intestine; this method of treating the scar does away with the necessity of leaving buried sutures; hernia will be less likely to follow laparotomy if operators will be less careless in closing the abdominal incision.

DR. H. J. GARRIGUES, of New York, read a paper entitled "Stomatitis due to the Irritation of Epithelial Pearls in the Mouths of New-born Children." [See THE MEDICAL NEWS of October 1, 1892, page 373.]

The following officers were elected for the ensuing year:

President—Dr. Theophilus Parvin, of Philadelphia.

Vice-Presidents—Dr. W. H. Parish, of Philadelphia; and Dr. W. H. Baker, of Boston.

Secretary—Dr. Henry C. Coe, of New York.

Treasurer—Dr. Matthew D. Mann, of Buffalo.

Members of Council—Dr. B. B. Brown, of Baltimore; Dr. A. P. Dudley, of New York; and Dr. Willis Ford, of Utica.

The Society adjourned to meet in Philadelphia on the third Tuesday in May, 1893.

NEWS ITEMS.

The New Clinic and Lecture Hall of the Philadelphia Hospital was formally dedicated on Saturday last, with appropriate ceremonies. Addresses were made by Mayor Stuart, Col. William H. Lambert, Dr. R. G. Curtin, Mr. Charles Lawrence, and others.

The Chicago Clinical Review is the name of a new monthly, the first number of which bears the date of October. Dr. George Henry Cleveland and Dr. Albert I. Bouffleur are the editors, and there is a long list of collaborators, containing the names of well-known clinicians and writers.

The American Orthopedic Association.—The following officers were elected at the recent meeting to serve for the ensuing year: President, Dr. A. J. Steele, St. Louis; Vice-Presidents, Drs. Samuel Ketch, New York, and Arthur Gillette, St. Paul; Treasurer, Dr. A. B. Judson, New York; Secretary, Dr. John Ridlon, Chicago.

"Hon. C. Pancoast Gaily, M.D.," is travelling through Ohio, inserting flaming advertisements in the newspapers and using the names of certain Philadelphia physicians in commendation of himself. He gives with quotation marks, as if it were a personal letter from Professor J. M. Da Costa, a quotation from the introductory chapter of Da Costa's *Diagnosis*, and misuses a personal letter of Professor John B. Roberts to physicians as a part of his public medical advertisement. The fact illustrates the need of the greatest caution, or even absolute refusal, as regards commendatory letters by physicians.

The World's Congress Auxiliary has been organized in connection with the World's Columbian Exposition, and has been recognized and approved by the Government of the United States. A local committee of arrangements has been appointed by the World's Congress Auxiliary, and an advisory council will be selected from those eminent in this department in different parts of the world, to arrange a World's Congress of Medical Climatology, to be held at Chicago during the Exposition season of 1893. The design is to hold this Congress at a time convenient to those who will attend the congresses of the other divisions of the Department of Medicine which are assigned to open May 29, 1893. This early date was chosen to accommodate those who will desire to attend the Medical Congress to be held in Rome, Italy.

The Eleventh International Congress will meet in Rome, Italy, from September 24 to October 1, 1893. By an official letter dated August 22, 1892, and signed by Prof. Guido Baccelli, President, and Prof. E. Maragliano, Secretary-general, Dr. A. Jacobi, of New York, has been directed to form an American Sub-committee. Its membership is not yet complete, but on it are already found beside that of the Chairman, the names of Drs. William Osler, of Baltimore; S. C. Busey, of Washington; N. S. Davis, of Chicago; Charles A. L. Reed, of Cincinnati; William Pepper, of Philadelphia; F. Peyre Porcher, of Charleston; James Stewart, of Montreal; and Alexander J. C. Skene, of Brooklyn, N. Y. In the interest of facilitating the trip to Italy and reducing the expense, arrangements will be made with the steamship companies. According to a communication from the Central Committee, contained in a letter of the Secretary-general, dated September 14th, the North German Lloyd proposes to reduce the fare to Genoa by 20 per cent. and that of the return trip by 10 per cent. It is expected that still more favorable terms will be secured.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, OCTOBER 22, 1892. NO. 17.

ORIGINAL ARTICLES.

UTERINE OSMOSIS.

BY WALTER S. WELLS, M.D.,
OF NEW YORK.

AMONG the principal modern discoveries that have contributed to the preëminence of gynecology we recognize especially those of anesthesia, antisepsis, and the adaptation of atmospheric pressure as utilized by the illustrious Sims in the application of his duck-bill speculum.

The object of this paper is to call attention to the availability of certain other physical forces—those of translatory molecular motion, and known as osmosis and capillarity—as most efficient aids in the treatment, and as *preventives*, by early treatment, of some of the diseases peculiar to women, that, once developed, are incurable by any device of surgery.

It has been repeatedly demonstrated in practice that these laws may be made as successfully operative for curative purposes in all conditions of disease of the female pelvic organs characterized by *congestion* or *engorgement* as they can be illustrated by osmotic apparatus in the laboratory.

The human system abounds in capillary materials that have, to a limited extent, been utilized by the physician, notably in effecting medication by the hypodermatic syringe and in vaccination.

The same principle that governs the absorption of medicine placed among the lymphatics anywhere under the skin may be made operative among the same class of vessels under the mucous surfaces, through which they communicate by myriads of infinitesimal pores.

The lymphatic system, as is well known, has long been regarded as the principal group of vessels accomplishing absorption.

It was vaguely hinted at as having some form of existence, undefined and without its present name, as long ago as in the time of Hippocrates and Aristotle, and has since engaged the best efforts of the ablest anatomists and physiologists in the successive centuries and among all enlightened nationalities, working out to its present status our knowledge of this system as a unity.

That no valvular arrangement is found in the most numerous, smallest, and peripheral lymphatic vessels is favorable to making use of them for osmotic purposes.

The lymphatics are remarkable for their exuberance and anastomoses, especially in the female intrapelvic organs. Profusely, however, as they are distributed in and around the uterus, they are even more abundant in and around the ovaries.

These innumerable lymphatic vessels form infinite inosculations and merge into more tangible branches.

Branches from the cervix, together with branches from the vagina, coalesce to form trunks that enter the internal iliac and sacral glands, and branches from the uterus, ovaries, Fallopian tubes, and rectum also converge and enter the lumbar glands.

These intercommunicating lymphatic channels form a circuit through which osmosis of the uterus and vagina reaches neighboring organs involved in congested conditions requiring treatment.

Endosmosis of medicated fluids at the uterine and vaginal point of these congeries or anastomoses of lymphatics will influence the entire circle; and simultaneous exosmosis will, in its turn, effect drainage and depletion, not only of those parts to which the medicinal application is immediately in contact, but others adjoining them.

That portion of the vascular system next in importance for the purposes we are considering is the capillary system of bloodvessels.

Some physiologists claim that these networks of minute tubes connecting the terminations of the arteries with the beginnings of the veins exercise a greater power of absorption than the lymphatics.

It is sufficient that both, being all-pervading and intermingling in unnumbered myriads, are equally subject to the laws of capillarity and osmosis.

The endosmometer, as illustrated in works on physics, is a very simple contrivance, but it explains some of the most important of Nature's laws.

Many interesting experiments are illustrated in works on physics demonstrating the phenomena of osmosis, and others concerning the double current of different liquids passing each other in opposite directions through the same tube, of even the finest possible bore, under the combined influence of capillarity and diffusion.

The general law is that when endosmosis is in operation exosmosis is also present; but, exceptionally, in some cases, movement is only in one direction.

The simple movement of exosmosis is strikingly illustrated by the action of glycerin upon the

mucous surfaces of the os and cervix uteri, inducing a profuse outpour of serum.

For many years advantage has been taken of this to deplete the uterus, so as to gain absorption of medicines locally applied, upon the principle that prompted physicians of the olden time to bleed their patients just before giving medicine, to promote its absorption.

The other half of this problem, however the fact that the uterus is susceptible of medication by endosmosis, is a discovery of recent date, especially as to the capacity of this organ to be operated upon by both osmotic forces simultaneously.

In the artificial endosmometer we have a membrane interposed between two liquids of different density. A double current sets in, each liquid passing the other at the same time, on its way through the capillary tubes or pores of the membrane.

It is well known that in the anatomy of the female, the mucous membrane of the vagina, of the os, of the cervix, of the cavity of the uterus, and of the Fallopian tubes, is one continuous expanse of capillary orifices, living, absorbing tubes or pores.

This membranous expanse of living orifices comprising the mucous surfaces stands, in the *human* endosmometer we purpose to demonstrate, in the same relation as to mechanism as the dead membrane in the artificial endosmometer occupies, and the living membrane is correspondingly more active for osmotic work.

It is only necessary, in order to institute osmotic operations upon the uterus, to complete the relations suitable for maintaining medicated fluid in direct apposition with the mucous membrane of the organ by means of a material composed of soft, porous, clustered tubes in which capillary action may take place.

For this purpose nothing has, so far, been found superior to the fine Syrian sponge made surgically clean, bleached, and kept for use in antiseptic fluid until required.

By bringing such a sponge into contact with the os, the cervix, and the vagina, we have multitudes of capillary tubes on each side of a living membrane, itself permeated by myriads of infinitesimal pores; the whole forming a superior endosmometer, and, if the sponge *in situ* is saturated with a suitable fluid of low density the phenomena of osmosis becomes demonstrable.

Experience has amply demonstrated that, with these relations maintained, endosmosis of an aqueous medicated fluid in the sponge occurs; this being of lower density passes through the pores of the mucous membrane, to be absorbed by the lymphatic and capillary vessels of the organs. At the same time, exosmosis of the heavier fluid-deposits incident to congestion or inflammation takes place, the excretions passing out into the sponge.

We thus form an endosmometer within the vagina, which will simultaneously medicate and drain the entire circle of lymphatic and capillary inosculations in the pelvis.

The osmotic properties of sponge were, several years ago, referred to by Dr. McCourt of New York.

Since then cases have presented in my practice in which it seemed desirable to facilitate relief of more deeply-seated engorgements of the pelvic organs by extending osmotic influences more directly within the recesses of the uterus and Fallopian tubes than the sponge alone could reach.

This I accomplished by introducing through the cervix a small spiral-wire tube covered with a woven texture, and containing within its caliber capillary filaments constituting a wick, each extremity projecting beyond the tube about half an inch.

This tube being passed within the os internum, the capillary filaments rest upon the intra-uterine mucous surface, while the saturated sponge, being placed *in situ*, holds the lower extremities of the filaments; and capillarity and endosmosis convey the fluid from the sponge up within, to be diffused upon and absorbed by the endometrium. The tube is made slightly bulbous at the extremity to be introduced, and of a length to just pass through the cervix. The bulb aids retention and the spiral form preserves the filiform wick from being pressed upon in its caliber.

The extremities of this wick extend beyond the spiral tube, so that the upper one lies in direct contact with the endometrium, while the lower end is imbedded in the saturated sponge placed against the os and cervix.

By this arrangement osmosis is brought into play upon the endometrium and Fallopian tubes directly, while it does not interfere with the same process going on between the sponge and the vaginal portion of the uterus.

As the fluid in the sponge is drawn up the wick by capillary attraction it becomes diffused slowly upon the mucous lining of the uterine cavity and Fallopian tubes, to become absorbed by their vessels, and we get direct endosmosis and exosmosis without any shock, as is so liable to follow injection of fluids into the uterine cavity by using a syringe.

It has been of common occurrence in cases of chronic congestion and inflammation of the uterus and its adnexa, upon the removal of this apparatus —after about twenty-four hours—to find it saturated with puriform, sanious, or mixed excretions; and this, too, when the most careful examination of all of its surfaces visible by the Sims method failed to find an ulcer or other solution of continuity to account for the puriform discharge.

The purulent or other product found in the apparatus represents the *exchange* effected during

osmosis, the liquid of lighter density passing inward, while the liquid of heavier density passes outward from the diseased tissues.

It might seem that it would be difficult to use the intra uterine capillary tube, but the very conditions of disease of the uterus especially requiring this plan of medication and drainage are accompanied by dilatation of the os, cervix, and the uterine cavity.

It is, in addition, an important element of the law of capillarity that it works in a vacuum, or without reference to the presence of air, quite as well as in open space, even assuming that the closed uterus could maintain a vacuum.

The filiform fibers constituting the wick in the intra-uterine spiral-wire tube will raise the fluid from the saturated sponge in contact with the endometrium and the orifices of the Fallopian tubes with as much ease as the wick in the familiar house-lamp serves to raise even a heavy oil to a height of several inches; or, as the osmotic action causes the ascent of sap in trees.

In practice, water and alcohol, our best solvents for the remedies most available in osmotic medication, are, fortunately, the fluids most susceptible to osmotic influence.

Local medication of the uterus in the old routine is nearly useless in cases of marked version or flexion of the organ causing a degree of bending and compression sufficient to keep up engorgement. In such cases the capillary spiral tube not only maintains the cervical canal patulous, but the sponge may be utilized both as a pessary and as a fountain for osmosis.

The sponge to be used as a pessary is first to be wrung out of the medicated fluid as nearly dry as possible, and, after being placed *in situ*, a long-nozzled syringe is to be used to saturate it with the fluid.

The distention of the sponge by the fluid maintains the uterus upon a soft, elastic support, much superior to many other more expensive appliances for this purpose.

It is manifestly impracticable, in the limits of this paper, to enter into a detail of all the conditions treated in works on gynecology and point out specifically wherein this system of osmotic treatment may be beneficially substituted for the old routine.

We are justified in stating that the osmotic plan of treatment is indicated in *all* stages of congestion, engorgement, or inflammation of the vagina, uterus, Fallopian tubes, ovaries, peritoneum, rectum, or other tissues whose lymphatic and capillary vessels anastomose with those of the vagina and uterus..

Osmosis of the two last-named organs will similarly influence the others.

If we were to specify conditions in which an improvement in treatment has long been sought, we would say that those of ovarian inflammation, puerperal septicemia, and the engorgement incident to subinvolution are conspicuous and are influenced by osmosis more than by any other plan of medication.

Speaking of the prognosis of chronic ovaritis, Prof. Thomas makes the following admission: "I know of few curable disorders which I so dread to meet as this. The day will probably come when our treatment for it will be satisfactory and efficient, but it has not yet done so by any means. Many cases will entirely baffle treatment, while all will prove little amenable to it. That they often recover is true, but recoveries have, in my experience, but little connection with treatment."

In the matter of treatment Prof. Thomas expresses regret that he has nothing better to offer than the old methods, and concludes as follows: "It is now six years since the publication of the last edition of this work (*Diseases of Women*), and during that time no disease has more especially commanded my close scrutiny than this, and yet, in an amended edition after that lapse of time, I find myself unable to offer any improvement upon what was written then."

Regarding the prognosis given by Dr. Thomas that "the day will probably come when treatment of ovarian inflammations will be satisfactory and efficient," it is our conviction, based upon experience, that the day *has come* and that the "satisfactory and efficient" treatment of ovaritis is that by medical osmosis.

It is our belief further that this osmotic plan of medication will prove of great value as a prophylactic, preventing septicemia, through the prompt neutralization of septic conditions such as arise in puerperal and syphilitic cases, and, by equally prompt relief of conditions of engorgement of the pelvic organs will prevent disorganization of tissues, which, being allowed to happen, forms the starting-point of abnormal growths, and these, if there be constitutional predisposition, are liable to degenerate from benign into carcinomatous tumors.

Ninety per cent. of cases of puerperal fever occur within three days after confinement.

In endometritis following puerperal infection the after-pains are unusually severe; the lochial discharges become retarded and fetid; the temperature, following a chill, rises often to 104° or higher; the pulse, small and hard, increases from the normal to 120 or even 160 beats in the minute.

When, in any case, after confinement, symptoms of septic intoxication occur, at once flush the vagina with antiseptic douches, and, by the use of the wire curette and the applicator, remove the débris—such as particles of placenta and plugs of bloody mucus

—from the neck and the body of the womb and apply the sponge saturated with an anodyne and an antiseptic solution to the os and cervix.

Osmosis of the uterus will be effected, causing the lochial flow to be resumed, its fetor to disappear by the antisepsis, and the temperature and pulse to become reduced as the medication and drainage of the uterine cavity proceed.

In such cases the sponge should, for the first few days, be removed at least night and morning, and be cleansed by washing in water (containing spirit of ammonia), carbolized, re-medicated with an aqueous solution of carbolic acid, morphine, and glycerin, or other suitable mixture, as the physician may elect, and replaced in direct contact with the os and cervix, to maintain osmosis.

The anodyne-antiseptic mixture should, between replacements, be occasionally injected to keep the sponge *in situ* saturated as well as to promote vaginal cleanliness.

Post-mortem examinations by Championnier, Leopold, and others, show that in puerperal inflammations the lymphatics are commonly filled with pus; and, according to Courty, chronic inflammation of the female pelvic organs confined almost to the lymphatics themselves, of this region, is a common occurrence. Hence the importance of promptly unloading these vessels and relieving the engorgement of the uterus, so as to arrest local disorganization and neutralize blood-poisoning.

I have no doubt that morbid growths have their origin in some one or more of the involved lymphatic or capillary tubes that become obstructed during protracted congestion, and, unable to float away the clog, disorganization follows.

It would thus seem easy to account for the frequency of such morbid growths in the uterus and ovaries, considering the great number of women who suffer repeatedly from protracted congestions of these organs during the years from puberty to the menopause.

If these repetitions of congestions do, in time, constitute the focus of an abnormal growth in the uterus, the ovaries, or in some contiguous tissues, it follows that, if the congestions are promptly relieved or prevented by osmotic treatment from becoming protracted, there may be fewer women in the future applying for the removal of tumors and carcinomatous growths by *surgical* measures.

We cannot too strongly emphasize our belief that the intelligent employment of the osmotic plan of treatment set forth will, in time, be found to have lessened the records of uterine and ovarian cases applying for surgical relief.

There is no restraint in the matter of remedies. The physician can choose among the list of antiseptics, anodynes, alteratives, etc., that experience has found useful in regular routine. He must, however, observe the laws of osmosis, which are open to all to study, and a reasonable amount of practice will soon perfect the average practitioner in the management of the uncomplicated apparatus described.

236 WEST THIRTY-FOURTH STREET.

SOME POINTS IN THE EARLY DIAGNOSIS OF VERTEBRAL TUBERCULOSIS.[1]

BY LE ROY W. HUBBARD, A.M., M.D.,
OF HARLEM, N. Y.

PERHAPS an apology is due for presenting so old a subject as Pott's disease of the spine, or, as I prefer to call it, vertebral tuberculosis. But my excuse is twofold: first, the extreme importance of the subject itself; and secondly, the fact that so many cases present themselves to me in both dispensary and private practice, with marked deformity, which have been treated for weeks and months by various physicians, without the true nature of the trouble having been suspected. When one sees a case of caries of the vertebræ in the dorsal region, that has been treated for six months as a case of dyspepsia, because the child complained of pain in the epigastrium, until finally the parents themselves discovered the projection; or still another with an abscess as large as a good-sized orange projecting in the lumbar region, that has been treated for lumbago, there is a feeling that a little more light on the subject, even candle-light, may not be wasted. The two cases referred to were not in the hands of ignorant men, but in those of well-posted general practitioners, one of whom has a large hospital experience.

Often a mistake is made, as I think, in these cases, from a lack of thorough and careful examination. All cases in which there is the slightest suspicion of possible disease of the spine should be examined most carefully. In my opinion, the physician who does not strip and examine from head to foot a child that is brought to him with a history of persistent pain or peculiarity of attitude or gait is guilty of criminal negligence. It is just such superficial and careless work in the past that has contributed to the large number of deformed and crippled beings that constitute a crying reproach to our profession.

It is an easy matter to diagnosticate vertebral tuberculosis when there is a prominent deformity of the back or when an abscess is present; but when that time has come, great destruction of tissue has taken place, and the chances for a favorable result from treatment are greatly diminished.

I grant that it is often extremely difficult to make a positive diagnosis in the early stages of the dis-

[1] Read before the Harlem Medical Association, April 6, 1892.

ease, and that men of experience sometimes err; but the disease is not of such a nature as to require a hasty opinion. Plenty of time can be taken to study and watch the case, and if the symptoms are suspicious, keep it under observation. Don't, I beg, dismiss it in an off-hand way, saying to the parents that it is probably "rheumatism or growing-pains."

The points that I shall try to bring out in this paper I do not claim as original. They represent the result of the instruction and experience obtained during the past eight years in observing a large number of cases at the New York Orthopedic Hospital and Dispensary.

Before taking up the subject proper of my paper, I desire to say a few words in regard to a term that I shall have occasion to use several times, and which seems to be only imperfectly understood and appreciated by the profession in general. I refer to reflex muscular spasm, and consider it the one most important symptom not only of spondylitis, but of chronic disease of the other joints in the early stage. By it I mean a tonic spasm or contraction of all of the muscles in relation to a diseased joint, by which Nature endeavors as much as possible to protect the joint from the traumatism of motion. It is present only in those muscles that act upon the diseased articulation or vertebræ; it is almost without exception an expression of bone-inflammation; it is the first symptom to appear, and persists until complete healing has taken place. It can be discovered in two ways: sometimes by the rigidity of the muscles appreciable to the touch, but more surely by an attempt to move the joint involved.

In some cases in which the disease is extensive or acute, the slightest attempt at motion is met with resistance, and you can feel the muscles quiver under your fingers, while the patient suffers no pain if the limb is handled carefully; in others a certain range of motion is allowed with perfect freedom, but a point is always reached where the muscles say, "Thus far and no farther shalt thou go." That this resistance is purely reflex can be proved by the administration of an anesthetic, when motion will be perfectly free. It is difficult to describe just the sensation which this condition gives to the examiner, and it requires some experience to differentiate it from the voluntary resistance of a frightened and crying child.

Passing now to the direct subject of my paper, I will first consider the history of the case as an element in the early diagnosis. This is generally mentioned in text-books as quite important, but my experience has taught me to place very little reliance upon it. There can be scarcely a question in the mind of anyone who has studied the recent investigations in the pathology of vertebral caries that the process is tuberculous. But this does not imply that the child must necessarily have had tuberculous ancestors, or previously have shown evidence of ill-health. It is true that close questioning will probably reveal some cases of tuberculosis on one or the other side of the family, but the same is no doubt true of children that have no disease of the vertebræ. The sources of infection by the tubercle-bacillus are so varied and numerous that there is no necessity for seeking a further direct cause.

Traumatism also does not play the exclusive part supposed by some authors, and it is uncommon at the dispensary to obtain a history of any severe injury to the spine. Yet, in all probability traumatism is in most cases the direct predisposing cause of the development of the tuberculous inflammation; but it is a traumatism so slight as to produce no impression on the parents' minds, or as not to cause the child to suffer pain at the time.

In my opinion, a slight but oft-repeated traumatism is a more important factor than a single severe injury. Though the injury may be slight, yet it is sufficient to cause an extravasation in the highly vascular structure of the body of a vertebra, which forms a home for the lodgment of tubercle-bacilli, which then begin their destructive process. But it is usually many weeks after the injury that any symptoms are noticed, for the action of these organisms is exceedingly slow. Therefore, the history of tuberculosis in the family and of a distinct traumatism is of value when obtained; but the absence of both, with the presence of decided symptoms, should have no influence in determining the diagnosis.

As a matter of fact, in the early stage of vertebral caries, as well as in chronic disease of the other joints, the presence or absence of any one symptom is not sufficient to determine the true nature of the trouble. It is only by a careful grouping of symptoms and objective signs that a positive conclusion can be arrived at, and these latter are in children much more important than either the history or subjective symptoms.

For clinical purposes we may divide the spinal column into three regions, differing somewhat from the usual anatomic division. The first consists of the cervical and upper three dorsal vertebræ; the second extends from the fourth to the tenth dorsal, inclusive; and the third comprises the remainder of the column.

The early signs of disease will vary greatly in accordance with the region in which it is situated. The upper region is the one of greatest range of motion; numerous and powerful muscles are either attached to the vertebræ themselves or pass up on either side to attach the head to the trunk and assist the spine in giving the former firm support. We might naturally expect, therefore, that inflammation of the vertebræ in this region would call very

early upon these muscles for protection against motion and traumatism, and this we find to be the case. As a rule, the first symptom or sign noticed by the parents is that the child carries its head stiffly, and frequently places one hand under the chin for support, complaining perhaps of being tired, but not of actual pain. There may be no deformity, and the head may be held erect, but if the disease be situated high up, involving the first, second, or third vertebra, and the child is asked to look to the right or left, the whole body will be turned to accomplish the act.

If the inflammation is further down, rotation may be easily performed, but flexion and extension will be either *nil* or greatly limited. In many cases there is deformity, the head being twisted to one side or the other, in a position very much resembling that of torticollis.

So close is the resemblance often to this disease that many cases of caries have been treated with liniments, etc., and cases are on record in which the muscles have been divided. A point of difference is that in torticollis the chin is turned away from the contracted side, while in Pott's disease the reverse is the case. In some cases, particularly in young babies, the head is thrown back in extreme extension, and is rigidly held in that position.

In any of these cases, whether deformity is present or not, if the trunk is fixed and an attempt is made to move the head in all directions, sometimes at once, and in all cases before normal motion is completed, there will be resistance to further motion, and the sensation of a spasm of the muscles will be felt, while an expression of apprehension will pass over the child's face, even though no actual pain is suffered.

Placing one hand under the chin and the other under the occiput, giving firm support, and then making gentle traction in the line of deformity, will usually give relief.

Among older children there is sometimes a complaint of pain in the back of the neck and head, but this is not constant, and a careful examination will generally reveal a slight projection or thickening around the diseased vertebræ, showing that the inflammation has existed for some time. The projection into the pharynx, and difficulty in deglutition, which in some text-books are pointed out as important symptoms, I have seldom found, and then only at a late stage of the disease.

It is in the second region that we find the greatest difficulty in making an early diagnosis as well as in carrying out efficient treatment. This portion of the spine, locked by firm attachments to the ribs, possesses the least mobility, and hence we cannot depend upon early manifestations of reflex spasm in the muscles. For this reason, we seldom see cases of disease in this locality before some deformity presents in the slight projection of one or more spinous processes. There are, however, certain well-marked early signs to which I wish to call attention.

A stiffness of carriage, with a tendency to hold the spine very erect, coupled with a disinclination on the part of the child to engage in active sports, is frequently noticed. Pain in the epigastrium, or anterior portion of the chest, is a frequent sign of disease in this second region, owing to pressure on the roots of the nerves, and a persistent pain in these regions should always call for a thorough examination of the spine. If the child is stripped and carefully watched during respiration, it will be noted that the respiratory movements are largely abdominal, the muscles of the chest being held quite rigid in order to prevent motion of the ribs as much as possible.

Where the disease is limited to one vertebra, a marked difference in the motion of the ribs attached to it, as compared with that of the other ribs, is often observed. In young children a grunting respiration is strongly indicative of disease of the spine in this region. Lateral pressure on the chest at the suspected point frequently causes pain.

In a certain proportion of cases there are no symptoms of a subjective character, and the discovery of the kyphosis by the mother is the first intimation of any trouble. For this reason it is a wise measure to instruct mothers to examine the backs of their children at least once a week.

But the presence of deformity is not always proof-positive of disease. Not long ago a child, about three years of age, was brought to the dispensary by its father, who had discovered a sharp projection in the mid-dorsal spine. There was no history of injury, the child was apparently well, complained of no pain, and played about as other children did. When the little girl was stripped, as characteristic a kyphosis as is usually seen in the early stage of Pott's disease, was plainly visible. It seemed to be confined to the spinous process of one vertebra. Careful examination, however, showed no muscular rigidity, the ribs moved freely, the spine could be flexed and extended, and there was no stiffness in walking. From the absence of these symptoms I was inclined to be doubtful, in spite of the kyphosis. The child was seen by others of the staff, and at different times, and finally a diagnosis was agreed upon. An apparatus was ordered, and while it was being made the child played about as usual. At the end of about two weeks the father was notified to come for the brace. He did so; the child was stripped and placed upon a table, but to my utter astonishment the kyphosis had entirely disappeared. What it was or what became of it I cannot say.

When we reach the last division of the spine we find a region of mobility exceeded in degree only by the cervical region.

It is natural to expect, therefore, to have the presence of disease here indicated by symptoms referable to the muscles acting upon this portion of the spine. We find this to be the case. The muscles attached to the lumbar and lower dorsal vertebræ are all put in the condition which I have described as reflex spasm. The muscles become rigidly contracted, and hold the spine in a position to give it the greatest possible protection from traumatism. This is apparent to even a casual observer, and the mother will often say that she has noticed for some time that the child has held its back stiff in walking, has taken short steps, being particularly careful not to step down from small heights quickly, or to go over rough places, and if possible to avoid them. When, too, it stoops to pick up various articles, it does so in a peculiar manner. Instead of bending over so that the spine is flexed, it is held rigid, and the movement is executed by flexion of the knees. To regain the erect posture usually one hand is placed upon the thigh. This movement is very characteristic, and when present caries of the lumbar vertebræ should always be suspected.

Examining the child in the erect position, no deformity may be noticed, but, owing to the rigidity and spasm of the lumbar muscles, it will be impossible for the child to bend forward while holding the knees straight. After this examination, the child should be placed in the prone position upon a flat surface, and with one hand upon the dorsal region and the other grasping the legs, attempt to hyperextend the spine. The normal spine in children is exceedingly flexible, and the pelvis can be raised to some height from the table and swung laterally; but if there is disease in the lumbar or lower dorsal region, reflex spasm is immediately excited, and no motion of the spine is permitted.

The next test consists in the attempt to extend both thighs with the pelvis held firmly upon the table. With disease present on one side or the other, complete extension of the thigh will be limited, and spasmodic contraction of the muscles will be felt. Care must be taken that the thigh is rotated inward during this test. The resistance is due to contraction of the psoas and iliacus muscles, which I consider as one. Their attachments are to the lower dorsal and lumbar vertebræ above, and to the lesser trochanter of the femur below, and their function is to flex and rotate the thigh outward. When the thigh is extended and rotated in, this muscle is made tense and immediately responds by spasm, if there is disease at its origin. The same sign is observed in hip-joint disease, and mistakes in diagnosis are sometimes made, particularly if the contraction is sufficient to cause flexion of the thigh to a position often seen in hip-joint disease, and producing a limp which resembles that of the latter disease very closely. But in hip-disease there is limitation of motion in all other directions also, while in spinal caries flexion, adduction, abduction, and rotation are nearly normal. This is a very valuable diagnostic sign of disease in the third region of the spine, but it is possible to find it with some other conditions. There may be a psoas abscess independently of bone-disease, and consequent psoas contraction, but the spine will not be held fixed to resist motion in every direction. Acute disease of the pelvic organs may produce it, but generally the history and other symptoms will make the diagnosis clear. When psoas contraction is present, if the patient be placed upon the back with the knees elevated, deep pressure into the pelvis will generally show more or less fulness on the side of the contraction, with some tenderness. This may be slight and difficult to detect, or there may be evidence of a distinct tumor, with deep fluctuation.

Occasionally a lateral deviation of the spine is noted, without any kyphosis being present. In such a case it is possible to make the mistake of diagnosticating lateral curvature; but the rigidity of the spine and the psoas contraction, which are not present in lateral curvature, make the diagnosis comparatively easy.

In young children we sometimes see a rachitic condition of the spine that closely resembles Pott's disease in this region. When the child stands or sits, there is a projection of the vertebræ that does not entirely disappear even when the prone position is taken. There is also some rigidity of the spine when an attempt to extend the spine is made, but there is no psoas resistance, and the marked evidence of rachitis in other portions of the body will be found. These backs are all benefited by support, so that an error in diagnosis is not serious.

Of course, we have the various manifestations of hysteria that give symptoms of disease in all of the regions, even to muscular rigidity and reflex spasm. The discrimination is often difficult, but in a suspected case many and careful observations, under varying conditions, will generally clear up the diagnosis; in any event, in a doubtful case it is better to be on the safe side, and treat it as one of real disease.

It may be noticed that I have not mentioned a symptom usually found in all the text-books, and considered very important, viz., tenderness on pressure or percussion over the spines of the affected vertebræ. I have omitted it purposely, because I consider it a symptom of no value whatever. It is rarely present, and never in the early stages of the disease. In

fact, when I see a case that presents a great amount of tenderness over the spine, I am generally positive that it is not Pott's disease, but spinal-cord irritation.

In older children and adults the pain produced by a sudden jar to the spine in stepping down quickly from a slight elevation, or rising on the toes and dropping suddenly upon the heels, is a valuable symptom quite early in the disease.

In concluding this paper, in which I have attempted to give only a few hints or suggestions in regard to diagnosis, I wish again to emphasize the importance of thorough and careful examination of cases that present any symptoms of spinal disease. If discovered sufficiently early, it is possible to effect a cure, with no appreciable deformity, even when the disease is located in the dorsal region.

326 LENOX AVENUE.

SURGICAL DISEASES OF THE URINARY ORGANS. STONE IN THE BLADDER; ITS REMOVAL.

BY W. S. FORBES, M.D.,
PROFESSOR OF ANATOMY, JEFFERSON MEDICAL COLLEGE; CLINICAL SURGEON TO JEFFERSON MEDICAL COLLEGE HOSPITAL.

A LARGE stone in the bladder is easily found, while the existence of a small one may readily escape detection; yet it is of vast importance to the patient that the presence of a small stone should be pointed out, in order that it may be removed without that trouble and risk which so frequently attend the removal of a large stone, which it surely will become if permitted to remain in the bladder.

There are three methods of removing stone from the bladder:

1. By litholapaxy (crushing the stone and washing the débris from the bladder through a canula, at one sitting).
2. By supra-pubic cystotomy.
3. By perineal lithotomy.

One of these three methods of operating must be selected by the surgeon, and with the most careful judgment, as best applicable under the conditions present in each individual case. I may greatly prefer, ordinarily, to crush the stone, but if it is partly lodged in the wall of the bladder, it is impossible to crush it; so that I must open the bladder either by a supra-pubic incision or through the perineum; or the stone may be so large that it can be removed only by supra-pubic cystotomy.

Each one of the three methods of operating has its own peculiar fitness in a certain class of cases.

My own view is that litholapaxy, crushing the stone and removing the pulverized fragments at one sitting, is best suited and is most applicable to the greatest number of cases. In short, it is, for the most part, by far the most successful method of removing stone from the bladder that is now practised.

We are indebted to our countryman, Dr. Bigelow, of Boston, alone and entirely, for its conception and its introduction into practice.

He gave it its name, litholapaxy (*λίθος*, a stone, and *λάπαξις*, an emptying out), by which it is known everywhere.

As an evidence of the extent to which litholapaxy is now practised, I shall give *in extenso* the published experience of a British surgeon in India, Dr. P. J. Freyer, in his "Clinical Remarks on the Present Position and Scope of Litholapaxy."[1]

Litholapaxy in male children. When, in 1885, Keegan first showed that Bigelow's operation was capable of successful extension to the case of male children, I lost no time in procuring the necessary instruments and applying the operation to such cases. In two papers I placed before the profession full details of 49 cases of litholapaxy undertaken by me in male children, or boys below the age of puberty. Since then 67 males of fifteen years and under, suffering from stone, have come under treatment, and in 66 of these I have performed litholapaxy—in all with complete success. In only one instance was it necessary to have recourse to lithotomy (supra-pubic). The greater my experience of litholapaxy among male children becomes, the more I am fascinated by this operation. Though the average number of days such cases were kept in hospital was 5½ as a rule, these little patients may be seen playing about the day after the operation, perfectly happy, and untroubled by urinary symptoms of any kind. Did space permit, I could illustrate the force of this statement by details of numerous cases from my practice.

It will be observed that among this series there were two little patients of two and a half, four of two and a quarter, and one of two years, respectively, from whom calculi, varying in weight from 2½ to 80 grains were removed by litholapaxy, and I have previously recorded a case of a male child, aged one and a half years, from whom I removed a calculus weighing 3 grains by this operation. It is astonishing the facility with which a No. 6 canula will pass through the urethra of a child of this age. In this connection it will not be amiss to mention that on June 7, 1889, a child, aged nine months, was brought to me with symptoms of stone, but in whom no stone could be found. In this case I passed a No. 6 canula easily, and washed out the bladder by an aspirator, for diagnostic purposes. Had there been a stone I could have removed it by litholapaxy readily. Thus it will be seen that with the suitable instruments now available, litholapaxy can be successfully employed in patients of the most tender age.

Cases in which cystotomy or lithotomy was performed. Among this series of 168 calculous cases there were only three instances in which I was unable to perform litholapaxy; and, strange to say, they were all three of the same nature—calculi of medium size, lying partly in the bladder and partly impacted or sacculated in the prostatic urethra, from which position they could not be by any means displaced.

In the first of these cases, a lad of ten years, suffering from stone for five years, I performed supra-pubic cystotomy, under the impression that the stone was a large one—an impression in which examination by the rectum falsely confirmed me. The operation was performed on July 25, 1889, the calculus weighing 3 drams. The patient then passed into the hands of Surgeon-Major I

[1] British Medical Journal, May, 1891, p. 1005 et seq.

Boulger on August 3d, and was discharged cured on August 14th.

In the second case, that of a man aged forty-five years, suffering for four years, median lithotomy was performed on December 17, 1889, and the patient discharged cured on January 13, 1890.

The third case, aged nineteen, was a patient on whom I had previously performed supra-pubic cystotomy on June 23, 1887. He remained free from urinary troubles for two years, when symptoms of stone again set in, and he applied for relief on January 24, 1891. On passing a sound I detected a stone at the neck of the bladder, and endeavored to dislodge it backward, but without effect; so I performed median lithotomy, Surgeon-Major P. de H. Haig and Surgeon S. F. Freyer being present. I found the stone, which weighed 136 grains, lying in a cul-de-sac at the neck of the bladder, formed in the largest part by the distended and distorted prostatic urethra, and communicating with the bladder by an opening through which, after removal of the stone, I could pass my forefinger. The patient was discharged cured on February 15, 1891. This man had had left lateral lithotomy performed on him when a child.

Such, then, are my most recent experiences in the surgery of stone in the bladder. There are two very important lessons to be learned therefrom:

1. That litholapaxy is almost universally applicable to all cases of vesical calculus, as is clearly shown by the fact that I have been enabled to perform this operation in 165 out of my latest 168 cases of stone, occurring in both sexes and in all ages and conditions. During 1890, 106 patients suffering from stone came under my treatment, and litholapaxy was performed in one and all of these, with one death.

2. That the dangers which we anticipated from the extension of litholapaxy to the case of male children were purely imaginary and had no foundation in fact, as is fully proved by my having now performed this operation in 115 males below the age of puberty without a death, and in all with complete success.

General statistics. In my work on *Litholapaxy*, published in 1886, I gave the results of 321 operations for stone in the bladder—128 litholapaxies and 193 lithotomies—performed by me down to the beginning of that year, with 14 deaths, and showed that the introduction of litholapaxy into my practice had had the effect of reducing the mortality from operations for stone in the adult from 18 to 5¼ per cent. Since that time I have in three papers published in the *British Medical Journal*, including the present paper, given full details of a further series of 400 cases of stone in the bladder. There were among these 342 litholapaxies—in 221 adult males, 5 adult females, 115 male children, and 1 female child—with 4 deaths; 54 perineal lithotomies—among 3 adult males and 51 male children—with 1 death; and 4 supra-pubic lithotomies—in 2 adult males and 2 male children—with 1 death. That is to say, 400 operations with 6 deaths, or a mortality of 1½ per cent.—a result which we can scarcely expect to improve on while we extend the operation to almost hopeless and moribund patients. It is a result unequalled in any other large and important operation in surgery, and entirely due to the introduction of Bigelow's method. The grave has now closed over that great surgeon, whose name is imperishably connected with the modern operation for stone and the word "litholapaxy" which he introduced to denote and distinguish it.

It has been my custom in every case of stone, before operating for its removal, to inject into the bladder once daily, for four or five days, two or three ounces of water, charged with 1 part of mercuric chloride to 6000 parts of water. It has seldom been necessary to lessen the strength of the solution. This injection is allowed to remain in the bladder some four or five minutes. In this way not only the bladder, but the stone itself, which is usually very foul, is placed in a much better condition and made much less offensive. The bowels are always looked after and kept soluble. At the same time I am in the habit of giving a tablespoonful of the following solution twice daily:

℞.—Acid. benzoici	. . . .	ʒij.
Sodii boratis	. . . .	ʒiij.
Aquæ	. . . . .	fʒxij.—M.

And once daily, ten or fifteen grains of salol in a capsule of balsam of copaiba are given.

By these means I have, in most of my cases, succeeded in allaying the irritation of the bladder and in placing the patient in a better condition for operative interference.

On the day of the operation the solution of mercuric chloride should be omitted. In performing litholapaxy, and at the moment of operating, in the adult, four ounces of warm water containing ten grains of boric acid to the ounce should be substituted, and in the young child two ounces of this solution are sufficient.

The instruments used in litholapaxy, in the adult, are two lithotrites, a large and a small one, together with an evacuator, and one or more canulæ. The large lithotrite is used to break the stone in the first place, and the smaller one is then used to crush the fragments to such a size that they can pass when the canula is introduced.

I prefer to use Bigelow's lithotrites. The larger is No. 19 of the American scale and the smaller is No. 16. By the use of the smaller lithotrite much irritation of the prostate gland and the bladder may be avoided. After the fragments have been reduced to a proper size the lithotrite is laid aside, the canula introduced and the evacuator adjusted.

The evacuator consists of several parts. It has a large elastic bulb, slightly oval in shape, and capable of holding about ten ounces of fluid. Attached to the bulb inferiorly, is a glass bottle, which can be detached. At its upper extremity is a stop-cock, and laterally and inferiorly is another stop-cock. Through the stop-cock at the upper part the bulb is filled with warm boric-acid solution. The other stop-cock is for the purpose of articulating with the canula that has been introduced through the urethra into the bladder. The canulæ should be made of aluminium. The instrument weighs usually about ten ounces.

In using the evacuator it should be filled with warm water (that has been boiled) and adjusted to the canula that has been introduced into the bladder. The bulb is then compressed and the

solution is gently forced into the bladder. On removing the pressure the expansion of the elastic bulb causes a flow of the solution from the bladder into the bulb, carrying with it the fragments and débris of the crushed stone and deposits into the glass bottle. This process is to be repeated until every fragment of stone is removed from the bladder. It is to be observed to what a remarkable degree the bladder will tolerate the manipulation incident to the crushing of a stone. It was this fact, observed by Dr. Bigelow, that first led him to venture to complete the crushing and remove all of the débris at one sitting. Experience has fully demonstrated the immense advance made by this thoughtful surgeon.

In the case of a child with a stone of ordinary size and not a calcium-oxalate formation, a No. 7 lithotrite of the American scale is large enough, and may be used throughout the operation without removal until the stone is entirely crushed. The canula to be used, both in the adult and the child, should be a little larger than the lithotrites. The larger the canula that can be properly introduced the more easily will every fragment of stone be removed.

In the case of a large stone in a child, or a very hard one, such as a calcium-oxalate formation, I would prefer to perform supra-pubic cystotomy.

In performing the operation of supra-pubic cystotomy it should be remembered that in the child the larger portion of the bladder is above the pelvic strait, and, consequently, just behind the lower part of the anterior wall of the abdomen, and when the bladder is distended, say, with four ounces of water, its outline can be well marked out on the surface of the abdomen.

Now, the fold of the peritoneum that is reflected from the bladder to the abdominal wall is some little distance above the symphysis of the pubic bones. The peritoneum is quite firmly attached to the bladder at this place, but is quite loosely attached to the posterior surface of the anterior wall of the abdomen, there being a good deal of loose connective-tissue between the peritoneum and the wall of the abdomen; owing to this fact, the fold of the peritoneum here is easily raised to a greater distance from the symphysis when the bladder is distended. The distance from the symphysis to the fold of the peritoneum may easily be increased to two inches by distending the bladder.

It is through this space, and in the middle line (the linea alba) that the surgeon makes his incision down to and into the bladder.

While the lateral, posterior, and antero-superior walls of the bladder are made to move by distending the bladder, the *antero-inferior* portions of its walls on either side of the middle line are attached to the lower part of the pubic bones by the strong fibrous bands known as the anterior true ligaments, and hence this portion of the bladder is immovable. It is highly necessary to remember this fact in using the rectal bag or colpeurynter.

The operation is readily performed. We should have ready for use a rubber rectal bag, a gum catheter, a scalpel, a tenaculum, and two hooks, needles threaded, and a small pair of stone-forceps. The patient should be placed in the recumbent position, the area of operation well sterilized, and the neighboring parts covered with sterilized towels.

The rectal bag, oiled, should now be inserted well into the rectum and a stream of water be gently forced into it. By this means the postero-inferior rectal surface of the bladder will be pressed upward and forward. The rectal bag is a good basis upon which this portion of the bladder will rest.

The gum catheter should be introduced into the bladder, and through it some four ounces of warm boric solution injected.

In the adult, an incision, about three inches long, should now be made in the median line just over the linea alba and reaching to the symphysis of the pubes. In the lower part of this incision and just above the symphysis we should go in a direct line down to the bladder. As there are no bloodvessels here of any moment, a little hot water will stop the oozing of blood.

When the bladder is reached, the point of a tenaculum should be thrust through its wall at the upper part of the incision, thereby fixing this portion of the organ. The scalpel should now be carried into the cavity of the bladder, the wall of which should be incised in the middle line down to the symphysis. Two needles, well threaded, should next be carried through the wall of the bladder, one on each side of the incision, in order to hold the margins apart. With the forceps the stone can now be readily withdrawn.

The bladder should then be washed out with warm boric solution. The incision in the bladder should now be accurately stitched, the needle passing through all of its coats except the mucous coat. The bladder should likewise be stitched to the abdominal fascia at the margin of the incision. A soft gum tube should be left in the lower part of the incision, for the purpose of draining the bladder. A soft rubber catheter should also be used for removing the urine as often as may be necessary. The patient should be kept in bed until the parts are united, which is accomplished in a few days.

1704 WALNUT STREET.

ON October 17th, the Department of Charities and Correction of the City of Philadelphia appointed seventeen homeopathic district physicians.

URIC ACID.[1]

BY N. WIEST, M.D.,
OF DENVER, COLORADO.

WHEN I first thought of writing a paper upon the subject of uric acid my mind was pretty clearly made up as to what I would say. That was when I had taken into consideration only my own case and my experience in practice. Since reading the few articles that have been written upon the subject, and a wonderfully interesting book by Alexander Haig, I am not so clear as to what will be best said in a short paper like this.

The subject is a vast one, and the field as yet almost unknown. I am rejoiced to see it receiving some attention of late, especially from such men as Haig, and hope that at no distant day we shall all know something about it.

For five years I have been suffering with uric-acidemia. During all that time I have ever been on the alert for information upon the subject, and until recently have been disappointed—the literature has been so meager and unreliable.

I firmly believe that when we know as much about uric acid and the rôle it plays in disease as we do about many other things, we shall have the key to the prevention and cure of a great many troubles that are now taxing the ingenuity of the physician. We shall then treat a great many diseases intelligently and scientifically which we are now treating empirically. As an example of this I will cite acute tonsillitis, the treatment of which has been almost entirely empirical. Now, if we can prove tonsillitis to be caused by uric acid, which it certainly is, we can very soon tell how to treat it.

One of the most aggravated cases of uric acid disturbance that has come under my observation was in a man about forty years of age. The patient's habits in life have always been correct, generally speaking. He has never used tobacco or alcoholic beverages in any form. He came to Colorado about five years ago, not for his health, but for his purse. He never had rheumatism, so called, before coming West, but he did have two attacks of gout, affecting the metatarsal joint of the great toe of the left foot, each attack lasting about a week, and causing great distress during its continuance. These two attacks were about one year apart, and occurred shortly before his coming to Colorado.

The other symptoms pointing to the uric acid diathesis were repeated attacks of tonsillitis; severe headaches, lasting during the day, and passing off at sunset; waves of radiating lights before the eyes, with crossed vision, or temporary blindness; inability to sit quiet for any length of time because of aching of the legs, especially about the knees. Nothing more developed until he had been in Colorado about three months, when he noticed pain and a small degree of stiffness in the muscles and joints, without any swelling. At about this time the changeable autumn weather came on, and with it an increase in the trouble. The patient then first began to notice that his face would be of an ashen hue during the morning, and that the face and eyes were much congested every afternoon, together with more or less headache, which would invariably cease about sunset. This latter feature was so constant that he felt assured that, no matter how much he suffered during the day, relief would come at evening. These headaches would start and be most severe at the base of the brain, though, when most intense, the whole brain felt as if it were inflamed. They recurred as often as four or five times a week. At these times the urine became scanty, acid, and very highly colored. Samples, placed upon a slide and subjected to the action of acid, deposited heavy crystalline masses of urates. Immediately after these spells the urine was, upon microscopical examination, found to be loaded with uric acid.

In making frequent tests I found the amount of acid to vary, at times being almost totally absent. Another prominent symptom was mental torpor, or drowsiness. The patient complained that when he felt the worst he could not think quickly, but was obliged to make an effort not to appear stupid. In attempting to read he found that after perusing a page he could not tell what he had been reading, no impression having been made on his mind. Drowsiness was so troublesome that reading and attendance at lectures or church were useless. The effort to keep awake was positive torment; yet, when he allowed himself to go to sleep the sleep was very unrefreshing, unsatisfactory, disturbed by unpleasant, crazy dreams, and filled with difficult tasks, dangerous situations, and nightmares.

One very annoying symptom was lapse of memory. This would manifest itself more frequently during the day, about the middle or early afternoon. He would lose track of portions of the day and what he had done during those times, and would often go and review his work, for fear that it might not have been properly performed, always, however, finding everything all right. He often remarked that were responsible parties to come to him and state that he had committed murder or some outlandish act during one of these spells of lapse of memory, he would not dispute the statement, not knowing but that such might be the case. He only knew that he had felt horribly depressed, with a feeling of impending danger, and could not tell whether one minute or two hours had passed. Those who were with him would notice nothing strange or unusual in his manner. Aphasia was

[1] Read before the Colorado State Medical Society, June, 1892.

troublesome, the patient often losing words or familiar names right out of ordinary conversation; sometimes forgetting whole sentences, which would drop out of his mind like a flash.

In October he was confined to bed with an attack of acute muscular rheumatism, attended with high temperature, severe pain, and a hot dry skin. He was given a hot bath, followed by pilocarpine, which produced profuse sweating, the perspiration smelling as sour as vinegar. Subsequently sodium salicylate was given. The patient was at work again in a few days, though by no means free from his old symptoms.

He consulted a number of specialists, one telling him the condition was neurasthenia, and advising electricity, plenty of exercise, carefully selected diet. Another called it a torpid liver, and recommended a cholagogue, not forgetting calomel. Another laid it to indigestion, and placed more hopes in dieting and the use of aids to digestion, as pepsin, pancreatin, etc. The patient himself called it rheumatism, for want of a better name, and was advised by friends to take all the known anti-rheumatics, many of which he tried, but with no appreciable benefit, until he tried salol, then salol and phenacetin, which relieved him of the pain so long as he persisted in their use, while the other symptoms remained much the same. I have now put him upon the treatment recommended by Haig, to be mentioned later, and am getting good results. This case is only one, perhaps a somewhat aggravated one, of a class of patients continually coming under observation for treatment of one or more of the aforementioned symptoms, and taxing our abilities to bring about a perfect cure.

When a patient comes to me with any of the following symptoms I immediately look for uric acid, and generally find it in sufficient quantities to cause the trouble: Intense headache, coming on either in the morning before rising, or after dinner. The morning headache often passes off after the patient has been up and about his work a short time; the afternoon headache generally becomes easier, or ceases altogether at evening. There may be pain and a tired feeling in the back; a feeling of complete "goneness," or of fulness, as the case may be, in the stomach or bowels, with extreme restlessness; "blind staggers," as the patients often call it; dizziness, whizzing lights before the eyes; temporarily disturbed vision; buzzing in the ears, with a sense of fulness in the head. Sometimes the face is flushed, especially in the afternoon; the eyes congested. There may be aversion to mental or physical exertion; a sense of impending danger; irritable temper; indigestion, with all of its accompanying evils; rheumatism and neuralgic pains.

There is another symptom, or class of symptoms, that must have a little more extended notice, as they are important in this connection, from the fact that they are usually referred to other causes, and come under the head of skin-diseases. They are urticaria, or nettlerash, some forms of eczema, and a condition that I will not name, but will try to describe in a few words. It consists of an intense itching that appears in the fall, and disappears in the spring with the return of warm weather. One lady always spoke of it as her "winter itch." The itching is mainly confined to the legs and arms, and is extremely annoying because of its intensity. It is most severe after undressing at night. There is no eruption at first—or at all, for that matter; but we often find that the patient has scratched the skin off in his distress. Scratching does not relieve, but increases the itching almost beyond toleration. I have found this condition in a good many patients, and all describe it alike.

The uric-acid sufferer is a crank. He has a perfect right to be one. He is a miserable being much of the time. He can never call himself entirely free from pain or distress in some form.

Rheumatism ever stands ready to grasp him in its clutches. When his mental faculties are clear, and he feels that he is himself again, and can do some mental work, then he finds himself assailed at every joint and muscle by his arch-enemy, *rheumatism*.

If he takes a slight cold, and the secretions are checked, he soon finds himself suffering with an attack of acute tonsillitis. I have found this very common in children who are of the uric-acid diathesis, and my rule for treatment is to reëstablish the secretions, regulate the diet, excluding meats, and treat upon the anti-rheumatic plan. Success is sure, speedy, and gratifying. A person afflicted with excess of uric acid becomes an easy prey to the specialist. The nerve-specialist claims him for his own, likewise the oculist, laryngologist, dermatologist, and he who makes a specialty of urinary diseases.

I cannot conceive of how a man can practise medicine with any degree of intelligence or success until he has learned to make a complete analysis of his patient's urine, knows what he sees when he sees it, and also knows the significance of what he finds. We, as physicians, do not look into these matters as frequently as we should. We would have better success in treatment if we did so. In the urine we have a key to a large proportion of the troubles for which we are consulted; then why not use the means given us to assist in our investigations.

Now the question arises, what light have recent investigations thrown upon this subject? I will admit that "now we only know in part;" but knowledge is becoming more positive. Many things that recently were wholly in the dark, or only *supposed*,

are now in shape to be accepted as facts. For my part, I feel sure of the following statements: One of the principal things to attend to is diet. This should consist of vegetables, fruits and milk, excluding meats, or only allowing small quantities of fish and fowl. I allow no coffee, and tea and cocoa only in moderate quantities, and very weak. I find coffee very harmful, and strong tea equally so.

Of vegetables, I forbid baked beans, boiled cabbage, watermelons, all of which I have found to increase the trouble. Among the fruits, strawberries seem to cause the most disturbance. I lay this to the presence of a peculiar acid contained in them. A good many of my patients have been obliged to give up eating strawberries. Blackberries and raspberries are also harmful, possibly because of the constipation they produce. Sugars and sweetmeats of all kinds should be indulged in very sparingly. Many patients tell me that in twenty minutes after eating confections or sweets they become conscious of a very disagreeable, sour taste in the mouth, as though the sugar had already undergone fermentation. Plenty of good, plain food, well cooked, may be taken, and four times a day, if the desire exists. Much milk may be drunk. The skin should be kept active by frequent warm or hot baths at night, and by a cool plunge or sponge-bath in the morning. Regular hours should be kept, with plenty of sleep, and the laws of health in general observed.

No spirituous or malt liquors of any kind should be allowed; they are all harmful in any quantity whatever. Plenty of water should be drunk; water that has been boiled and then cooled is best. The majority of persons do not drink enough water. The system needs flushing as well as the sewer. Professor Haig's conclusions seem to be that the troubles arising from uric acid do not so much depend upon an excessive formation as from an accumulation in the system as a result of defective excretion. My own observations and experiments made upon myself and others lead me to agree fully with him upon this point. When excretion has been defective for a period of time, the system becomes filled with acid, and the various symptoms already mentioned manifest themselves. Then we must not only prevent increased formation by regulating the habits and diet of our patients, but we must also prevent retention by the same means, and get rid of that which has already accumulated. So far as we know at present, this latter is best accomplished by the use of alkalies, as salicylates, salol, sodium, phosphate, quinine, etc. These drugs, acting as solvents assist in ridding the system of any excess of acid. Acids, iron, lead, lithium, acid phosphates, opium, mercury, strychnine, and caffeine cause retention.

We are as yet only entering upon the field of this great subject. We hope ere long "to clear" up much that is now obscure.

1745 EMERSON AVENUE.

PLICA CIRCULARIS CONJUNCTIVÆ IN THE NEGRO.

BY MIDDLETON MICHEL, M.D.,
PROFESSOR OF PHYSIOLOGY AND MEDICAL JURISPRUDENCE IN THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, AT CHARLESTON, S. C.

MANY years ago I noticed a singular distribution of the ocular conjunctiva in a negro child, and, having found the same condition in other children of the same race on several subsequent occasions, I was led to make some comments on the subject at a meeting of our medical society some time in 1880.

I had met this peculiarity only in negro children, except once in an adult negro whose eyes were so from childhood. At that time, as now, I thought that this was an anatomic arrangement of the conjunctiva more frequent, perhaps, in the negro, as I have not seen it in the white race, although I supposed it occurred in the latter, since Desmarres describes a somewhat similar condition witnessed on more than one occasion at his clinics in Paris. Desmarres proved to be the only author among the many then consulted who referred to anything of the kind, and he regarded it as a perikeratitic hypertrophy of the conjunctiva.[1]

Further inquiry among authorities at hand revealed the existence of a very rare disease of the eyes during spring and summer months, which had but recently attracted the attention of European oculists, some of whom regarded it as a veritable spring catarrh.

Hunter appears to have been the first to give a full and accurate account of this disease, in 1879; though Arlt[2] seems to have noticed it earlier and to have written concerning it in 1851. Subsequently an interesting description of this complaint is recorded by Dr. Swan M. Burnett, who refers particularly to its occurrence among negroes.[3] All of these and other writers, however, speak of a disease of the eyes not limited to any one part of the mucous membrane, but invading all portions of the conjunctiva of either one or both eyes, and especially conspicuous in the palpebral part of its course, characterized by nodules, excrescences, or papillary elevations of variable size. Such importance, indeed, is attached to the blepharitic condition that some have considered this the pathognomonic symptom, differentiating the disease from trachoma by the

[1] Maladies des Yeux, vol. ii. p. 184, 1855.

[2] Arlt: Clinical Studies on Diseases of the Eye, p. 15, 1885. (Translator, Wayne.)

[3] Archives of Ophthalmology, vol. x., 1881.

flatness and other features of these granulations.[1] All refer to a disease. Arlt indorses this view and considers it a scrofulous conjunctivitis that manifests itself especially among children between the ages of ten and fifteen years; but he remarks that it makes its appearance without previous inflammation, and so far resembles a simple hypertrophy in parts of the mucous membrane about the cornea; that his early acquaintance with the affection was in a little patient sent him by a colleague with the request that he would operate upon the eyes supposed to be affected with pterygia. Burnett writes also of a "circum-corneal hypertrophy of the conjunctiva," giving the same apellation as Desmarres, but stating that everything warrants the affection to be classed among the "conjunctivitides."

Personal research, on the contrary, and consideration of the rare instances that have come under my observation since 1876, force me to announce in this paper a congenital not an acquired or pathologic state of the adnata; having nothing to do with vernal conjunctivitis—*conjunctivite printanière* of De Wecker—or spring catarrh of the conjunctiva.

In my experience these accidental occurrences came in both eyes of negro children, at distant intervals, without reference to seasons of the year, and were of such a nature as to arrest my attention at once as something with which I was unaquainted. The impression at first conveyed was that of a singular development of perfectly symmetrical pterygia, of a dark color, surrounding both corneæ, giving a striking appearance and conveying an indescribable expression to the child. No pain, no iritic or sclero-corneal vascularity, no lachrymation, nothing indicative of inflammation was present; there was some little irritation, perhaps, but not more than would be produced by the friction of any thickened pterygion with the periodic movements of the lids.

Closer inspection discovered both corneæ buried within a rim-like encasement, produced by the infolding of the conjunctiva symmetrically around their margins to the distance of about an eighth of an inch, the accurately defined limitations of which were better marked by a deep pigmentation of the reduplicated conjunctival fold, such a coloration as is not uncommon about this membrane in negroes, but which was here confined to this plica circularis alone. This marginal hem of conjunctival tissue seemed borrowed in part from the bulbar portion, though principally made up of the attenuated sclero-corneal or almost epithelial portion; and this fold, quite detached and easily raised with a probe all around the cornea, was slightly elevated by an exudation through its layers so as to assume a gelatinous appearance. No trace of ulceration or phlyctenulæ could be discovered, and no leashes of blood-vessel were visible anywhere running into this mucous zone. The curious fact that Graefe[1] has written of what he terms a "gallertige infiltration," that is a jelly-like infiltration about the limbus, convinces me that so high an authority also noticed this very peculiarity which he, I believe, never associated, any more than did Desmarres, with any particular disease.

With the exception, then, of Desmarres, Graefe, perhaps Arlt, and recently Bronner,[2] who respectively refer to a strange adjustment of the adnata at the corneal attachment, and to its hypertrophied aspect, the only approach which others make toward the recognition of a similar distribution of the conjunctiva herein described among negroes is the mention of a partial thickening that sometimes results from a periodic summer disease of a markedly scrofulous and catarrhal type occurring and disappearing with the disease, but which does not by any means invariably include the entire circumference of the cornea.

Emphasis should be placed upon this special circumferential fold, as this feature is obviously more or less conspicuous in the accounts given by the few authorities recognizing this phase of the subject. The perfect symmetry of this overlapping fold of equal width around the cornea of both eyes appears to me inconsistent with the idea of its origin from previous inflammation, ulceration, or disease of this membrane. The history of the formation of a pterygium and of the degenerative changes consequent upon attacks of recurring conjunctivitis call to mind the irregular and eccentric folds into which the mucous membrane is thrown and puckered under such circumstances. After abrasions or even slight loss of epithelium about the region of the limbus, the swollen conjunctiva reaches the denuded surfaces, becomes agglutinated, and finally adherent, cicatricial contractions establishing a tucked fold of greater or less peripheral extent about the cornea with such vascularity as to indicate its traumatic origin; the radiating lines of traction toward the corneal attachment imparting the characteristic triangular shape to the pterygium, which, from the very nature of the tissues implicated, rarely occupies more than a very limited portion of the limbus, but never travels entirely around the bordered region in one symmetrical, regular, continuous fold of perfectly healthy tissue of the same width throughout.

Herpetic or phlyctenular ulcerations, and particularly multiple syphilitic gummata, with their nodules running confluently one into another in a thickened border line about the cornea, might easily impose a similar aspect, but the immobility of indurated,

[1] Cyclopedia of the Diseases of Children, vol. iv. p. 93.

[1] Archives of Ophthalmology, vol. x.

[2] Lancet, July, 1888.

cicatricial, and adherent tissue, with well-marked traces of previous disease, are always present to exclude any misapprehension.

Regarded by some again as a simple hypertrophy of the membrane—the view which Desmarres evidently takes of the subject—it may be inquired whether this condition was considered as the result of previous inflammations or not. Now, hypertrophy of a mucous membrane consists of an increase of its structural elements, the nutritive material for which is imported into the region by a liberal blood-supply; but just here in this locality the conjunctiva has parted with all of its histologic elements save its protective or epithelial layer, which remains alone to extend itself like the thinnest possible araneous structure over the cornea. Any hypertrophy about the limbus could consist of a hypersecretion of epithelia only, and, however great this epithelial proliferation might be, it would scarcely constitute the increased thickness, and anatomic folding-in of the layers such as has been described, and certainly would not be regarded as a true hypertrophy of the mucous tissue as such; nor would this be productive of exactly the appearances we have noticed. It must be remembered in this connection, however, that hypertrophy may sometimes be congenital.

The striking pigmentation of this ring of movable and overlapping conjunctival tissue, in bold contrast with a clear and non-vascular ocular conjunctiva in the negro, formed another remarkable feature of these cases. Here again, in this vicinage, we are not to look for a veritable secretion as we would elsewhere, for no secretory process is possible where the histologic structures, even as simple cells, are not present to produce it; this coloration seems rather to depend upon certain filtrates from the blood, escaping without rupture of any blood-vessels, but through simple pressure consequent upon the obstructed or impeded flow through this modification of the mucous membrane; the dark pigmentation represents such chemical changes as have readily converted these filtrates into pigments; through mechanical obstruction the hemoglobin escapes, permeates the part, and becomes converted into permanent pigment.

To the views herein expressed as to the anatomic nature and congenital character of this circum-corneal ring of mucous membrane the only avenue to adverse criticism would lie in the conjecture that I had overlooked a very important disease of the eye, designated by some writers as conjunctivitis estivalis, or more likely that I have only seen a singular chronic variety of the affection supposed to have exhausted itself at the limbus alone. Would not, however, the annual recurrence of such a disease have very soon declared itself in unmistakable terms? —or even its occasional advent have rectified any possible or probable misconception? Especially would this have been the case, as during the prevalence of the recent allotropic conditions of the oxygen of the air that have predisposed to every kind of irritation and inflammation of the sensorial and respiratory tracts, we have all been vigilant of any epidemic or endemic cause engendering disease. Again, would not the palpebral variety of the disease, so dwelt upon by those who have accurately described it, have unavoidably intruded itself upon my observation, more particularly from its supposed resemblance to *trachoma*, which latter affection is so rare in negroes that many consider this race as almost exempted.

The absence, then, of all catarrhal symptoms, and the exceptional peculiarity of so precise and equable a perikeratitic fold of highly pigmented movable membrane, presenting a like arrangement in both eyes, and seen in negroes alone, are circumstances that seem to indicate a congenital disposition of the conjunctiva, very frequent, at least, in the negro, and similar to the plica semilunaris and membrana nictitans, of which the former is but a vestige.

Until further developments respecting this subject I am disposed to consider this a description of an anatomic feature observed in the eyes of our negro population particularly, which should be termed the plica circularis.

HOSPITAL NOTE.

RECTO-VAGINAL PERFORATION.

Clinic of Prof. M. D. MANN, M.D.,
At the Buffalo General Hospital.

Reported by A. L. Benedict, M.D.]

I have here a case to show you which is interesting, and yet more or less disgusting. The patient is a prostitute of the very lowest type, who was brought into the hospital on Friday in a state of intoxication. The history elicited was that she had been cohabiting with a man the night before while both were under the influence of liquor, and that he had injured her severely. Examination shows that there is a rent in the recto-vaginal septum an inch and a half long, and the only way in which it can be accounted for is that it was made at the time of the last sexual intercourse.

A great many accidents have occurred at the first sexual approach, such as vesico-vaginal or recto-vaginal puncture and consequent fistula, the tearing of the parts about the clitoris or the bulb of the vagina. These lesions have occurred especially when there was great disproportion between the male and the female organs. In some instances women have almost lost their lives at these times. In the present case, however, such a disproportion cannot have existed, and the trouble must have been due to some abnormal posture or unusual violence during intercourse. With the history that the

patient was intoxicated at the time and her paramour somewhat so, he might have entered her by the anus, and the pressure of the penis on the recto-vaginal septum may have caused the tear. At any rate, be the mechanism of the accident what it may, the history is that it occurred during cohabitation, and the result is a tear which reaches from the perineal body very nearly to the posterior fornix of the vagina. This is the first bad case of injury during sexual intercourse that I have ever seen, though a number have been reported in books and journals.

It may possibly be that there was an ulceration of the septum previously to this intercourse. In order to determine whether such a predisposing factor to injury existed, I have had the patient etherized so as to do away with the tenderness of the parts. I shall insert a tri-valve speculum, so as to push the sides of the vagina apart and allow free inspection of the edges of this fistula. The speculum is inserted upside down, revealing a slight laceration of the perineum and a rent in the recto-vaginal septum, through which I pass a sound, in order to show you more plainly the extent of the lesion. The edges of the wound are healthy, there being no indication of venereal disease.

The patient has been pregnant, and has lately had an abortion. It is possible that this wound may have been inflicted in the instrumental attempt at procuring an abortion, but the patient emphatically denies this to be the case.

After the wound has healed I shall undertake an operation for the relief of the fistula. It was very difficult to do an operation on the posterior wall of the vagina till Simon showed that the recto-vaginal septum could be reached from behind, after stretching the sphincter ani and inserting a speculum into the rectum, so as to displace the posterior and lateral walls of the latter. By this method the anterior wall of the rectum comes plainly into sight, and an operation for the repair of a fistula between the rectum and the vagina is a comparatively simple procedure. It is necessary to have the patient completely under the influence of ether. Silk stitches are used. The sphincter being paralyzed by the preliminary stretching, there can be no retention of gas and therefore all tension on the stitches is avoided. We cannot keep iodoform in the rectum, as we could in the vagina, on account of the danger of absorption. We can, however, maintain a condition of cleanliness in the rectum.

LATER REPORT.—The patient was kept in the hospital ward until the parts had healed as much as they would spontaneously, daily douches of carbolic acid, 1 : 40, being given. She was then etherized for operation, and an examination showed that fully half of the wound had closed by the natural process of repair. On trying to operate by Simon's method, it was found impracticable. By putting the patient on her back and inserting a Sims speculum to hold up the anterior wall of the vagina, and two retractors to separate the lateral walls, the fistula was fully exposed, and, after the edges had been denuded, was closed with silver wire sutures in the same manner as a vesico-vaginal fistula. The parts healed kindly, and, after about two weeks, the patient was discharged entirely relieved of her trouble.

CLINICAL MEMORANDA.

THREE CASES OF COMPOUND FRACTURE OF THE SKULL.[1]

BY EDMUND J. A. ROGERS, M.D.,
PROFESSOR OF SURGERY, UNIVERSITY OF DENVER; SURGEON TO THE ARAPAHOE COUNTY HOSPITAL, ST. LUKE'S HOSPITAL, THE DEACONESSES' HOME HOSPITAL, ETC.

DURING the latter months of the last winter there appeared to be an unusual epidemic of injuries to the skull in and about the city; in fact, for some time a majority of the patients coming into the surgical wards of the County Hospital were those suffering from some injury about the head. The three cases of compound fracture of the skull, which I here summarize, all came in within a short time of each other. I am well aware that there is nothing new or original about these cases, but every case that we are able to record and refer to assists us in the treatment of similar cases.

CASE I.—A boy, Charles Stein, aged thirteen, was admitted to the hospital on February 11, 1892. While playing on the railway track he was struck on the head by a switch-engine, and a wheel passed over part of his foot and badly crushed it. We found on the left side of the head a scalp wound, about two inches in length, curving convexly forward, situated about three-fourths of an inch in front of the Rolandic region. A fissure-fracture of the skull could easily be felt, and as he showed distinct signs of cerebral compression and irritation, we decided to operate. He was brought into the hospital in the evening, but was not operated upon until the following morning. Before the operation he was examined by Dr. Eskridge, the hospital neurologist, who made the following notes of the nervous symptoms:

"There seems to be no loss of power or sensation in the legs. The right knee-jerk is increased, the left lessened. The left foot is injured and causes him to involuntarily resist the natural reflexes of this side, which accounts partially for the differences found. The right plantar reflex is increased; the left I am unable to determine, as the foot is bandaged. There is no ankle-clonus. The cremasteric reflexes are both present and normal. Other superficial reflexes are nearly normal. The left hand and arm are used in preference to the right, although he is right-handed. The right hand and arm are used rather awkwardly, but no loss of sensation is found either in the arm or any portion of the face or body. The dynamometer registered: R., 24, L., 36. The right hand and wrist muscles are more paretic than those of the upper portion of the arm. The whole of the right side of the face, from the crown of the head, is partially paralyzed. He cannot close the right eye rigidly or open it to the same extent as the left eye. Corrugation of the right superciliary region is lost and cannot be produced on voluntary effort. The face is drawn slightly to the left. His irritability prevents testing of the tongue. There is no affection of a sensory character at all. Special senses apparently normal."

His mind was clear, but he was disinclined to talk and had difficulty in expressing himself. It was hard for him to pronounce the linguous labials.

From these symptoms it was easy to see that the com-

[1] Read before the Colorado State Medical Society, June, 1892.

pression was extensive, but yet we did not expect in the beginning of the operation to find as extensive an injury as proved to be present. The main fissure of fracture was found to be immediately under the scalp-wound, but it continued much further downward and forward, and appeared to continue even round to the base. Beginning with it above, and diverging from it, and again converging, were two other lines of fracture forming an elliptical area about two and one-half inches in length and one and one-half inches in its greatest width. The central line showed the greatest depression. There was little depression at the lateral lines, but they marked where the skull had given way from the great force probably applied at the center. With a seven-eighths inch trephine we first removed a disc at the upper convergence of these fissures. This only enabled us to find that the skull was very thick and that the apex of depression was so strongly impacted and wedged down that it could not be moved by any means in our power. We then removed a disc at the lower convergence, but were yet unable to raise the depressed area, until by means of saw, chisel, and rongeur we had cut a canal about one-quarter of an inch wide along the lines of the greatest depression from one opening to the other. We had still, however, to raise one side of the fissured fracture below the lower point of depression downward and forward. When we had lifted all the depressed area we had exposed the dura for the length of three and three-quarters inches. The dura was found uninjured and pulsation became well marked over the whole area. The removed bone was cut up fine by bone-forceps, dressed with iodoform, and scattered over the exposed dura before the scalp was replaced and completely closed. It was then closely dressed. The temperature-chart for the days that followed showed the elevations for some days going a little over 100°. These are undoubtedly due to the extensive suppurating area of the crushed foot. The head was not uncovered for several days, and when opened it was found that a small suppurating area marked the center of the originally torn scalp, which had probably become infected beyond sterilization at the time of the injury, but all the new wound, and most of the original tear, had united very nicely and there had been no deep suppuration. This small area soon healed completely, but the boy remained in the hospital on account of his foot for some time after. Indeed, he left contrary to advice before the foot was healed. The nervous symptoms were improved immediately after the operation, and had all entirely disappeared by the third or fourth day, the aphasic symptoms being most marked for a few days, and he had great difficulty in finding words to express himself, using generally only one word alone to express an idea.

CASE II.—The next case was that of S. J. Burch, aged thirty-four, who was admitted on March 11th. He had been kicked by a horse in the right temporal region near the coronal suture. A fracture could not be made out with certainty until we cut down upon it, which was done upon the 12th. He presented no nervous symptoms whatever, and the feeling of roughness of the bone and the thinness of the skull in this area were the only indications of fracture present. We found an area, about one inch long and three-quarters wide, crushed in quite deeply. This probably corresponded with the calk of the horse's shoe. The greatest depression was at the lowest margin. By cutting away the exposed edge with a Keen's forceps, we could easily get under and raise the fractured portion of the inner plate, which directly and markedly depressed the dura. It was impossible, however, to keep it up, so that it had to be taken out, cut up, and replaced as in the foregoing case. The dura was uninjured. We had here also some suppuration, it being deeper than in the last case, so that a drainage-tube had to be put in after the first dressing was removed, which was several days after the operation. From the temperature, however, which was normal after the first day, we see that there was no serious inflammation, and the patient left the hospital on April 5th, completely recovered.

CASE III.—George Vandever, aged thirty, was admitted during the night of March 24th, said to have been injured in a bar-room row. He was brought immediately to the hospital, where I saw him at once. He was unconscious, breathing irregularly, with an unsteady pulse, and was said to have had a convulsion. (He stated subsequently that he occasionally had convulsions.)

The symptoms seemed too serious for delay, so we operated at once, at about 1 A.M. The injury was on the right side, beginning at about the temporal ridge and extending downward and backward for about one and one-half inches; under this was found a gutter fracture about one-quarter inch wide. The outer plate was comminuted and crushed inward and backward, probably by some narrow-edged instrument, with a backward force. The anterior edge was removed by means of chisel and forceps, and the small pieces picked out, when it was found that the inner plate was compressed over a large area, extending from the anterior margin of the wound backward. The bone posteriorly to the fracture was then trephined, but the opening had still to be enlarged before the depressed inner plate could be raised. During the early part of the operation the patient apparently expired, the pulse disappearing before the respiration stopped. Resuscitation was slow but satisfactory. The patient made a rapid and satisfactory recovery, although there was a very slight superficial suppurating area. His temperature, you see, ran up to 100° for some days, but not higher. He was discharged well on April 12th.

In dressing each of these cases it will be noticed that I adopted the plan of chopping up the fragments of bone and scattering them over the exposed area. It proved very satisfactory in all three.

The fact that there was some suppuration in each of them was to be expected, when it is considered that they were all compound injuries inflicted by probably infected agencies, and that two of them were not operated on until the day following the injury, so that organisms had plenty of time to have already developed in the wound. In none of them, however, was inflammation severe enough to cause a serious elevation of temperature, although the first dressings staid on for several days. In two the suppuration was quite superficial. Only in the one made by the horse's shoe was it deep enough to create fear of its reaching the dura. Each of these patients walked about the hospital a few days after the operation, except the one with a crushed foot, who, if

his head alone had been injured, would also have been able to do so.

The skull injuries that I have seen during the last few months have convinced me more than ever of the impossibility of diagnosticating often the presence and always the extent of a fracture of the skull, even when the scalp is cut. At the same time that these men were in the hospital, in another case I had to expose the bone thoroughly at the base of an open injury before I could show that it was not fractured, three or four surgeons, including myself, having diagnosticated a fracture. I believe that there are many cases in which the scalp is not broken, in which it is absolutely impossible to make a diagnosis without free incision. This I do not hesitate to make and have never seen any harm result from it. As to the question of operation on a fractured skull, I have no hesitation in saying that, in my opinion, when it is reasonable to suspect the probability of any compression or irritation from a fractured inner plate, we should operate. Surgery has now come to a stage at which the dangers from an operation are minimized, and every day is showing more and more bad results from leaving an injury on the inner surface of the skull unrectified. One of the most interesting questions to be discussed in this direction is, "To what extent should we explore when a bullet enters but does not leave the skull?" but this discussion does not come properly within the review of these cases.

In all skull-operations I wish to say a word of commendation for Keen's bone-biting forceps. It is an instrument that supplies a want hardly filled without it.

One of the noticeable features of recent skull-operations is the fact that so many surgeons are recommending the chisel instead of the trephine. While they are both very useful instruments, I do not think that the chisel should ever take the place of the trephine, although it is a most useful adjunct to it. In many operations the chisel can be used without the trephine, but for primarily going through the skull I think it is not as safe and certain as the trephine.

ATHETOSIS, WITH REPORT OF A CASE.

BY JOHN L. DAWSON, JR., M.D.,
PROFESSOR OF THE PRACTICE OF MEDICINE AND OF CLINICAL MEDICINE IN THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.

ATHETOSIS may be regarded as one of those neuroses of the motor tracts which presents no fixed pathologic lesion or no constant assignable cause. The disease received its name and first clinical history from Hammond in 1871, but has since been described and cases have been reported by many observers. These descriptions, whilst being very similar if not identical in the various symptoms presented, differ widely as to etiology and pathology.

The mobile spasm, as Gowers termed it, is necessarily present in all cases, but the causative factor of this spasm not being certainly known, it has been attributed to brain-lesions, lesions of the cord, and even to reflexes. In the majority of cases the disease is associated with epileptiform convulsions or imbecility, which point to some cerebral lesion directly. Again, it may be associated with or be present as a sequel to hemiplegia; or it may be bilateral, suggesting some focal lesion of the cord. The disease, presenting its unmistakable symptoms, occasionally exists without evidence of structural lesion, and must be considered as a neurosis due to reflex excitement. The following case, which has recently come under my observation, will support this assertion.

On the 10th of March last I was called to see a young negress, nineteen years and six months old, who offered the following history. Her mother died of pulmonary tuberculosis at the age of thirty-five years. Her father is still living and healthy, forty-eight years old. She has not been in health since puberty, being a dyspeptic and a constant sufferer from headache, her headache being always referable to a disordered condition of her stomach.

About five years ago she had an attack of rheumatism, which manifested itself as a synovitis of both ankle-joints, and confined her to bed for a month. She had been married four and one-half years, and in April, 1888, had given birth to a dead child. In the following year she again became pregnant, giving birth to an infant which lived for six weeks. In October last she miscarried, and is now, at the age of nineteen years and six months, again pregnant for the fourth time. Upon examination she presented the following peculiar symptoms: The fingers and toes of the left side were in constant motion, first flexed and then extended, the extension being extreme. Then they would become widely separated, and then overlap and be intertwined with each other. The patient could by will-power control these movements for a moment only, otherwise they were continuous. The general condition of the woman is perfect. She is well-developed, with a clear mind, good speech, and presents no evidence of disease beyond these muscular movements. Sensation and reflexes are normal. She is about six months pregnant with her fourth child. Her limbs are well developed, especially the forearms and the calves, but there is no difference in development between the sound and affected sides upon measurement. She states that these muscular movements were present when she was pregnant with her second child; they came on suddenly about the fifth month of her pregnancy, and disappeared spontaneously about the seventh month.

The case is peculiar in many respects. First, this affection is rare in the negro. Secondly, we rarely meet with it unconnected with mental impairment or paretic symptoms. The fact that the disease should twice be associated with pregnancy appears presumptive that this condition must be regarded as a causative factor, if not the sole cause. The disease closely simulates hemichorea occurring during pregnancy, but the peculiar hyperextension and distortion of the fingers and toes alone, the perfect condition of the brain, spinal cord, and general muscular system; the clear intellect, and the clinical history of the case, taken as a whole, would point to a diagnosis of a condition of athetosis, or hemiathetosis, if we may so term it, due to some unaccountable reflex caused by pregnancy.

The treatment has simply been rest in bed, with Fowler's solution of potassium arsenite in five-drop doses thrice daily, gradually increased until thirty drops were taken in the twenty-four hours. The muscular movements have gradually disappeared, until now they are hardly noticeable. The disease may be spontaneously

disappearing, as it did previously, as the pregnancy advances, and therefore no stress should be laid upon this treatment.

A LONG TOILET-PIN ACCIDENTALLY SWALLOWED, AND PASSED BY THE BOWEL AFTER FOUR DAYS.

BY AUGUSTUS A. ESHNER, M.D.,
CHIEF CLINICAL ASSISTANT, MEDICAL OUT-PATIENT DEPARTMENT, JEFFERSON MEDICAL COLLEGE HOSPITAL.

B. J., a colored girl, whose age is recorded as fourteen, but who appeared to be quite three years older, applied at the Jefferson Hospital on the evening of September 4th, stating that she had shortly before swallowed a toilet-pin, a duplicate of which she presented in evidence. As the foreign body seemed to be beyond immediate reach, the girl was advised to apply to the Out-patient Department on the following morning, and this she did shortly after noon. The girl stated that she felt slight pain in the epigastrium, but presented no other evidence of distress, beyond the fear of evil consequences of the accident that had befallen her. She was, however, reassured, and carefully enjoined to live upon a diet consisting exclusively of mashed potatoes and milk, and to examine her stools in the hope of finding the foreign body. She returned in the course of two days, stating that the bowels had been moved, but that the offending body had not been found; the abdominal pain had changed its seat, and was now referred to the right hypochondrium. She was advised to persist in the treatment recommended. A day later she had the satisfaction of passing the foreign body, which, she stated when she brought it to me two days later, was surrounded by a layer of potato. The accompanying illustration represents the actual length of the pin.

Cases of the kind to which that here reported belongs present certain features of interest. In the first place, the body was a fairly large one, and besides, having a sharp point, it exposed the patient to all of the risks attendant upon the presence of such a body in the gastro-intestinal tract. In the second place, foreign bodies have not always been swallowed when patients come complaining of such accidents. Within a year I have seen a woman who stated that she had swallowed a rather large plate of artificial teeth. The history was that, feeling unusually fatigued, she had, contrary to her custom, retired without removing the plate. On arising the next morning, the teeth were not in her mouth, and they could nowhere be found. The woman complained of considerable abdominal pain. There was no difficulty in swallowing, and a probang introduced into the esophagus encountered no obstruction. The woman was placed upon a mashed-potato diet, and reported several times, but finally failed to present herself. Inquiry, however, elicited the information that the missing plate had been found in some place in which it had previously been overlooked.

A third contingency that may arise is that a person has swallowed a foreign body and his statement be not believed. Just such a coincidence occurred within my experience in the case of a man at the Philadelphia Hospital, believed to be insane, in which the complaint of having swallowed a plate of teeth, with the accompanying symptoms, was considered to be a delusion, to which little attention was paid, until the condition became threatening, when exploration revealed the presence of a foreign body in the esophagus. Esophagotomy was performed, and the foreign body removed, but the patient unfortunately died of a septic pneumonia.

RIGHT HEMIPLEGIA AND APHASIA FOLLOWING DIPHTHERIA IN A CHILD.

BY ALLEN A. JONES, M.D.,
LECTURER ON PRACTICE OF MEDICINE AND INSTRUCTOR IN PRACTICE, MEDICAL DEPARTMENT UNIVERSITY OF BUFFALO.

IN May, 1891, I attended Florence T., eight years old, during a severe attack of diphtheria. The local and constitutional manifestations of the disease were pronounced, but the patient passed safely through the severe stages, and in about ten days was free from pyrexia, had a clean throat and a good pulse. The child seemed so well that I ceased making daily visits. One morning, however, I was hurriedly called, and found her with complete right-sided hemiplegia and ataxic aphasia. The right side of her face was entirely paralyzed. Her mother informed me that the child was talking and laughing an hour before I was summoned.

She was not unconscious at any time. The usual evidences of pharyngeal paralysis existed. No cardiac bruit was detected. The patient's mentality seemed sluggish for a few hours subsequently to the attack, but thereafter was normal.

Her repeated attempts to make herself understood were unavailing, as she produced only inarticulate sounds. Sensation was normal, so far as I was able to elicit. The patellar reflex was very weak and alike on both sides. Headache was not present. No pain was felt in any part of the body. After the lapse of two days, she was able to extend, but not to flex, her leg. Motor power gradually returned, first in the leg and thigh, then in the hand and arm, lastly in the face and pharynx. In about six weeks the little patient was playing out-of-doors, apparently as well as before her illness.

A few days ago I went to see her, and was struck by her frail appearance. She has grown very little, if any. She is very thin. Her eyes are large and her pupils dilated. No areas of anesthesia were found. Her patellar reflexes on both sides were almost imperceptible. Her sister states that the child has always spoken slowly since her illness. Her grandfather states that she has never been the same since, but is weak in body and mind.

436 FRANKLIN STREET.

GUNSHOT INJURY OF THE GREAT SCIATIC NERVE.

BY GEORGE S. BROWN, M.D.,
OF BIRMINGHAM, ALA.

H. K., a Russian Jew, thirty-five years of age, was admitted to the Charity Hospital March 23, 1889. On February 2, 1889, he had been wounded through the right thigh by a ball from a pistol. The ball entered

in the median line of the thigh at the middle third, and, passing close to the bone, came out behind about one and a half inches higher. Upon admission the wounds were entirely healed, but he came seeking relief from the intolerable pain that began immediately on reception of the injury, and, except when under the influence of morphine, had continued steadily during the entire seven weeks. The pain was sharply neuralgic in character, and torturing in its intensity. On careful examination its area was found to include the whole of the foot and leg—the distribution of the great sciatic nerve. The muscles of the calf and sole were in almost incessant painful spasm. He required half a grain of morphine sulphate hypodermatically every four hours.

It was quite clear from the history that the sciatic nerve had been injured by the ball, and it also seemed evident that the nerve was now involved in a cicatrix. An exploratory incision was made on March 25th, two days after admission. The patient was anesthetized, and an Esmarch bandage applied and fixed above the bullet-marks. The patient was laid prone, and an incision six inches long made in the middle line of the thigh posteriorly. Deep dissection between the long head of the biceps and the vastus externus exposed the nerve. At the point where the bullet had passed was an induration, a cicatricial mass, binding the body of the nerve firmly to the sheath of the biceps. With the finger-nail, this mass was dissected away from the nerve, down to its center, which was a wire-like cord about an eighth of an inch in thickness and a quarter of an inch in length. This was so hard that it was necessary to cut it off close to the nerve. It was at first thought to be a branch, but it extended no further than the sheath of the muscle, and consisted of the densest fibrous tissue. The nerve itself was thickened and indurated at this point, and it was a question whether simply freeing it would relieve the pain.

Every care was taken to insure asepsis throughout the operation, and the wound was dressed with the intention of performing a second operation for the resection of this indurated portion of the nerve if the pain was not relieved. Complete primary union was obtained, and the subsequent history was as follows:

From March 25th, the date of operation, until April 1st, when the first dressing was removed, the pain was very much worse, owing, no doubt, to the pressure of the effusion following and due to the incision. On April 2d, the pain began to diminish, and on April 5th the pain and spasm in the calf were entirely relieved, but were at times still intense all over the foot. On April 10th the pain was confined to the dorsum of the foot and to one small spot on the plantar surface internally. On the 13th he still complained of some pain at the spot on the sole. The morphine was steadily reduced as the pain subsided, and on the 17th it was cut off entirely, and the patient admitted that his pain was all gone.

Aside from its rarity, this case is of great interest to me in bringing up the possible necessity of resecting the nerve. I have been unable to find mention of any similar case, but I believe that almost any procedure would have been justified to relieve such intense pain as this patient suffered. We were fortunate, however, in not being forced to resort to any uncertain step.

In this case, too, must be noted how much depended on primary union. If the wound of incision had suppurated it would have left the nerve more than ever involved in a mass of cicatricial tissue.

MEDICAL PROGRESS.

Immunity to Enteric Fever.—STERN (*Deutsche medicin. Wochenschrift*, 1892, No. 37, p. 827) has made a number of observations in seven cases, as to the influence of the blood-serum at varying intervals after recovery from enteric fever. In five cases he found that after an attack of enteric fever the blood displayed not increased but strikingly diminished bactericidal activity; on the other hand, in one case, the blood-serum, as well as the other fluids of the body, possessed decided bactericidal activity seventeen and a half years after the attack. In four of six cases in which the blood was obtained shortly (from four days to five and a half weeks) after convalescence from enteric fever, the serum exhibited the property of protecting mice from infection with cultures of typhoid-bacilli, while the serum of persons who had never had enteric fever exhibited no such property. In three of the cases it was found that injections of a mixture of the serum with a sterilized extract of typhoid-bacilli, in equal parts, or in the proportion of two to one, in otherwise lethal doses, were well borne, while the serum of a number of control-persons failed to exercise any protecting influence. The conclusion is thus reached that the protective influence of the blood-serum of persons who have recovered from an attack of enteric fever is dependent upon a neutralization of the products of the presence and activity of the typhoid-bacillus and not upon a distinctive action upon the bacillus.

Death from Embolism of the Basilar Artery in the Course of Diphtheria.—MCPHEDRAN (*Canadian Practitioner*, 1892, No. 19, p. 454) has reported the case of a girl twelve years old, with diphtheria, who, while apparently progressing favorably, lost consciousness suddenly, became comatose, and died in the course of six hours. At the autopsy a firm, white embolus was found at the bifurcation of the basilar artery. The heart was not examined, but neither it nor the kidneys had presented any evidences of disease.

THERAPEUTIC NOTES.

The Treatment of Cholera.—BARTH (*Deutsche medicin. Wochenschr.*, 1892, No. 36, p. 817) has proposed the injection into the bladder of a physiologic solution of sodium chloride in the treatment of cholera when the blood presents evidences of thickening, as evidenced by anuria. He maintains that the mucous membrane of the bladder possesses absorptive powers, and ascribes the anuria that occurs in part to the resorption from the bladder of the watery portion of the blood.

For Cholera.—

℞.—Resorcin . . . . . ʒss.
Acid. hydrochlor. } . . āā ɱxx.
Tinct. opii }
Syrup. simplicis . . . . ƒʒv.
Aquæ . . . . . ƒʒvj.—M.
S.—A tablespoonful every two or three hours.

SONNENBERGER, *La Semaine Méd.*, No. 48.

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 22, 1892.

THE RISE AND DISSEMINATION OF SYMPHYSIOTOMY.

UNTIL this present year, Naples was almost exclusively the home of symphysiotomy during a period of twenty-five years. The operation was revived in that city in 1866, after it had not been performed in any part of the world from 1858 to 1865; and the persevering man who did this, and carried it to its present degree of success, still lives to see the fruit of his labors. Working quietly and in faith, PROF. OTTAVIO MORISANI now sees the fulfilment of his hopes to their full extent; and, through antiseptic management, to a degree beyond what he could hardly have looked for even ten years ago, or, we may say, down to January, 1886, less than seven years ago. Statistical records have been very carefully kept; and a certain degree of hopefulness was expressed in 1881, when the results of the first fifty operations showed a death-rate of 20 per cent. of the women and 18 per cent. of the children. The success under the Sänger-Cesarean method, after its introduction in 1882, and a train of misfortunes under symphysiotomy in the five years ending with December, 1885, during which the mortality in inexperienced hands rose to 44 per cent. of the women, had the effect to becloud the status of symphysiotomy, and make its few adherents more cautious in their method of preparing the patient, operating upon her, and treating her afterward. This brought about a perfection in the technique which has reduced the death-rate below 2 per cent., or one woman lost in fifty-two. The fetal loss, counting the stillborn, moribund, and deaths in the first three days, amounts to seven in fifty-two, under eighteen operators.

Very few out of Italy knew what a quiet, good work was going on in Naples, and but little attention was drawn to it through the publication of cases in journals. From January 1, 1886, to January 1, 1892, there were twenty-eight operations in Naples, and but one in any other Italian town; and as a result of these twenty-nine, there was a loss of one woman (from causes not traumatic) and three children (born asphyxiated). The operation necessarily grew into favor; and from one case each, in 1886 and 1887, the number gradually increased to ten in 1891.

It was now time to speak out, as there was a chain of evidence that could not fail to convince unprejudiced minds in other countries. Full of these facts, DR. P. G. SPINELLI, of Naples, visited Paris in November, 1891, and conferred with DR. VARNIER, editor of the *Annales de Gynécologie*, who, with PROF. ADOLPHE PINARD and DR. FARABEUF, made a series of observations upon the cadaver. PROF. PINARD read a paper on "Symphysiotomy," at the Clinique Baudelocque, on December 7, 1891; and DR. SPINELLI, under promise to DR. VARNIER, sent him a report of twenty-four operations, which he published in his journal of January 15, 1892, the report being dated December 11, 1891. The paper of PROF. PINARD appeared in the same journal a month later; but, in the meantime, he had performed a symphysiotomy on February 4, 1892, at the Clinique Baudelocque, saving the woman, but losing the child on the third day, from meningeal hemorrhage, it having been delivered by version. Thus, after an interval of seventy years, was reintroduced into Paris an operation denounced by BAUDELOCQUE. PINARD made a pubic section again on February 25th, and, on this occasion, with entire success. He has, in all, operated upon eight women in seven months. PROF. CHARPENTIER, of Paris, visited Naples last winter, examined two women, eleven and six weeks respectively after their operations, and could find no motion at the pubes, although the first woman had been operated upon twice. He returned to Paris on March 15th, and

advocated the method in the number of VARNIER'S journal for April. PROF. STEPHANE TARNIER has operated once, and DR. CHARLES PORAK twice, with entire success, thus giving Paris eleven cases in seven months.

Germany has a credit of three operations this year: one under PROF. WILLIAM A. FREUND, of Strassburg, and two under PROF. LEOPOLD, of Dresden, with no deaths.

The United States have also had three, all of the women being saved. The first child died, after twenty-four hours, from head-compression of twelve hours in lower pelvis. The other two children are living. The operators have been: PROF. CHARLES JEWETT, of Brooklyn, September 30th, ult.; PROF. BARTON COOKE HIRST, of Philadelphia, October 3d; and PROF. ANNA M. BROOMALL, of Philadelphia, October 7th.

There were ten operations in Naples last year, and eighteen out of Naples in seven months of this year. Since September 22, 1890, there have been thirty-four operations in four countries without a woman being lost that we have heard of, and with the loss of but two children. This year has doubled the operations of any year since 1777, with four months still to hear from.

"OCULISTS AND OPTICIANS."

WE have before us the advertisement of an "optician and oculist," in which the chief claim to public patronage is based on the ground that the advertiser is a "Graduate from School of Optics." He says of himself:

"I GUARANTEE TO FIT ALL CASES OF YOPIA, PERSHIOPIA, HYPROPIA, STIGMATISM, OR WEAK MUSCLES OF THE EYE. RX GROUND TO ORDER."

Now, we would not for an instant imply that this perfect self-revelation of combined ignorance and quackery is to be taken as the standard of opticians generally. It is quite as amusing to the best of them as it is to the physician. But what we wish to emphasize is that this ludicrous ass and his like are far less dangerous to the community than the sort of optician-quack who would not make such blunders, but who in more correct English advertises himself as an oculist.

In all correct usage, an oculist is simply a physician whose specialty in practice is ophthalmology. The entire profession is agreed, without discussion or exception, that the oculist must be a physician, and whatever the relative importance of refraction errors and their correction to diseases of the eye, there is no permissible question as to the fact that every case of ocular disease or abnormality, whether refractive, reflex, or inflammatory, must be treated with regard to its systemic relations. Directly or indirectly, negatively or positively, every case of special disease is bound up with questions of general disease, and should pass through the hands of the physician, who alone is capable of recognizing these systemic relations.

By the allowed use of the word oculist on the part of opticians there is being instilled into the minds of the community a confidence that will cost that community not a little suffering. It is a sneak-game for the optician to pose as an ophthalmic surgeon or physician. Every quack, as we all know, is up to this trick of imposing on the community in the name of medicine. The word oculist properly denotes and connotes the physician-specialist. But most persons, utterly undiscerning in such matters, know no difference between the terms oculist, ophthalmologist, and optician. Let the optician who poses as an oculist frankly put on his signs and advertisements: OPTICIAN AND PHYSICIAN, and the fraud will soon become patent by reason of prosecution for illegal medical practice.

It is becoming common for opticians to out-maneuver the medical profession by hiring fellows who may legally put M.D. after their names to come to their store and "examine eyes," before selling spectacles to certain of their customers. What kind of medical advice a patient would get from a "physician" who will hire himself out to a spectacle-peddler may be easily imagined.

It would be an interesting point to have settled by legal judicial decision whether the word *oculist* denotes *physician* or not; and, if so, whether an optician in advertising himself as a physician, when he has only hired a renegade physician to work for him, is not liable to the penalties of the law. If the word oculist does not mean physician, does its Greek equivalent ophthalmologist? If oculist does not legally mean physician, then the medical profession must turn the word over to the traders and choose a term that does have that meaning, and educate the community in this little, but important, bit of philologic wisdom.

One lower stratum of degradation has been proudly reached: the spectacle-peddler, trading on the gullibility of people, by the use of a stolen name

of somewhat doubtful significance, turns peripatetic and bamboozles several States instead of one city. The alternative title, if the peripatetic gentleman were entirely frank and truthful, would then be, not *Optician and Oculist*, but *Drummer and Doctor*, or *Peddler and Physician.*

To the medical profession it must be repeatedly pointed out: This is your affair; the problem is one for the entire profession to solve. If an ophthalmic surgeon or a society of ophthalmologists takes the matter up, the cunning crew who know no ethics but tricky self-interest at once grin a knowing smile and betray their own moral standing in the suggestion of "jealousy" and "class-interest." The brave man, of course, doesn't care a button for such ascription to him of unworthy motives by those who know no other kind of motives. It is not that ophthalmologists are at all frightened by the "competition" of these hermaphroditic, peripatetic, peddler-physician folk. Their wretched blunders make work for the genuine oculist, but in doing so the eyes and health of the customer-patient are ruined. But the reform should not be the work of individuals or classes. The gynecologist, laryngologist, surgeon, and general physician are all interested in the honor and progress, first, of medicine, and, second, of any branch of that profession. We are a body of men working for the public good by means of a special tool—medicine. If the barber should take to bloodletting again, or the faith-cure crank should kill someone by neglect, the surgeon and general physician would rightly expect the specialist to join in stopping the disgrace. Local and congressional bodies of physicians should by common action determine the significance of the word *oculist*, or take such action as will legally determine it, and they should also settle the professional standing of those young or unsuccessful doctors who sell personal and professional honor to the spectacle-tradesman for a few dollars a week.

ONE DOLLAR COMMISSION.

NOT long ago, and possibly at present, one or two drug-stores of a large American city kept a series of Yale-locked boxes behind the prescription counter, each marked with the name of a physician of the city. The boxes had a slot sufficiently large to admit a silver dollar, which, wrapped in the prescription, was placed in the box, when, by the careful direction of the writer, the patient had been piloted to the store. The special key was carried by the honorable gentleman whose professional card was upon the box.

If this seems ancient history, there lies before us a personal letter to a Philadelphia physician, dated September 30, 1892, in which with blank order checks, etc., at command, a "mineral spring" company offers to give the physician one dollar for "each order, at $5.00 cash with order, you send or cause to be sent to us," for a dozen bottles of the medicinally and miraculously potent water. "It must not be understood as a discount allowed to your patient."

Do we invite and relish the insult?

SELECTION.

ONE WAY OF INCREASING THE RETAIL DRUGGIST'S RECEIPTS.

WHILE retail druggists are complaining of cutters and of their loss of margin in profits on handling patent medicines, many of them overlook a source of patronage the cultivation of which would add materially to their income.

There are numerous physicians to-day, buying their medicinal supplies from physicians' supply houses, who with proper treatment might be induced to patronize their local druggist. Do you do what you can to accommodate the doctor and make it to his interest to buy from you? There is not one doctor in a hundred but would prefer to buy his drugs in small quantities as he requires them, rather than place an order with a physician's supply house for a large amount. The doctor would rather invest fifty or seventy-five cents in a small package than order $25 or $50 worth at a time from a supply house at a distance, if you would break stock packages and allow him a reasonable proportion of your discount. The physicians' supply houses are here to exterminate the retail druggist if they can. Why not retain your natural customer?

Do you try to win the confidence and coöperation of the doctor by refusing to advise people who come to you for medical advice, and suggesting they apply to one of your doctor-customers? Probably not. Do you refill prescriptions on the patient's request, without orders from the physician? If you do, you make yourself a competitor of the doctor and cannot expect his patronage. If you pretend to cater to him and make every effort to cut his throat, you may expect the doctor of the future to do his own dispensing.

As a recent writer pertinently says: "Between the diminished prescription-trade and the low rates at which patent medicines are sold by these general stores, the druggist is verily in a predicament. There is but one true solution to the dilemma. The medical and pharmaceutical professions should be more intimately related, and should work hand-in-hand. The physician should not be a dispenser of drugs; he should be content with receiving compensation for his services. The

pharmacist should be a compounder of prescriptions, and under no circumstances should he offer advice to the public in matters pertaining to the health of the individual.

"Let the pharmacist refuse to countenance quackery by abolishing from his establishment all patent medicines and advertising-matter pertaining to the traffic. At the same time let him respect the rights of the physician by refusing to refill any prescription unless authorized by the physician. The dealing in and recommending of patent medicines, counter-prescribing, and refilling of prescriptions are directly opposed to the rights and interests of the medical profession, and will ever be opposed by every honorable physician. Until the pharmacist learns to respect these rights he cannot expect to have the hearty sympathy and support of the physician. Let him assume the duties of a true and honorable pharmacist, and the physician will again give him the merited support.

"The medical profession refuses to countenance quackery in any of its phases; it refuses to associate with advertising physicians, and will never grant the compounder of its prescriptions a privilege which its own members will not themselves assume. Physicians and pharmacists 'cannot serve both God and mammon,' and must choose whom they will serve. The doctor must either be a physician or a quack. The druggist must either be a pharmacist or a quack."—*Bulletin of Pharmacy*, September, 1892.

CORRESPONDENCE.

THE METRIC SYSTEM.

To the Editor of THE MEDICAL NEWS,

SIR: THE MEDICAL NEWS of August 20th contained an article by Dr. A. L. Benedict, of Buffalo, on "The Metric System;" and, without any intention of criticising this paper in itself, I should like to call attention to a few points concerning the metric system, suggested by its perusal.

We are so accustomed to hear the praise of this system that few persons are aware of its defects; nor would any one suppose, from the chorus of its worshippers, that it was in any respect short of perfection. Yet every student of metrology knows, or at least may know, that the few advantages that it seems to possess can never compensate for its great inconveniences and its failure of adaptability to the great bulk of human transactions, and that in many respects it is highly objectionable both from a scientific and a practical point of view.

The metric system lays claim to superiority over other systems in virtue of (1) Its scientific excellence, (2) Its great convenience, (3) Its international character.

1. *Its scientific excellence.* The metric system is essentially a decimal system. Its advocates abhor the use of vulgar fractions, and would, if possible, expunge them from our arithmetic, and yet it is itself based upon a vulgar fraction, a quadrant, or fourth of a terrestrial meridian. This little inconsistency may be deemed unimportant, but it is the beginning of still greater deviations from scientific rectitude.

Again, the metric system, in taking as its unit of linear measure a portion of an arc of a terrestrial meridian, makes use of a curved line to measure straight lines. In this it is apparent to everyone that it is eminently unscientific. In the words of Sir John Herschel, "It is a scientific sin."

Yet again, the metric system in taking as its unit of measure a portion of the meridian of Paris, by actual measurement, but which, since the establishment of its standards has turned out to be incorrect, is based on false standards, and is consequently merely arbitrary and grossly unscientific.

2. *Its convenience.* The metric system bases this claim chiefly upon its decimal notation. A decimal notation has its conveniences, and is very useful in the art of bookkeeping, but in the great majority of human occupations it can never compete with the duodecimal and octonary, both of which enter largely into Anglo-Saxon weights and measures. The number 10 is divisible without a fraction only by 2 and 5, while 12 is divisible by 2, 3, 4, and 6. The number 8 is divisible successively by 2 down to units without a fraction; so that it is easy to divide anything into eight equal parts, but not into ten. Both of these systems of notation are in constant use by every mechanic, the foot-rule having its duodecimal divisions into inches, which are again subdivided according to the octonary notation into halves, quarters, eighths, and sixteenths.

Of the apothecary's art Prof. Oscar Olberg says: "There is probably no other science or art in which the great convenience of dividing quantities into halves, quarters, eighths, sixteenths, thirty-seconds, and sixty-fourths is so obvious as it is in the measuring out and subdivision of doses, especially of the doses of tinctures, wines, solutions, etc. The trifling advantage of exact decimal proportions is nothing in comparison with the great practical value of facility of easy progressive subdivision of the dose without fractions."

Again, the units of the metric system are inconvenient in size and not adapted to practical use. The meter is altogether too long, the centimeter too short. Weights and measures should have some relation to the size and strength of the average man, and some relation, too, to the materials to be weighed and measured. Not to go more deeply into this point, on which, however, there is much that might be said, it does seem to be much more likely that the standards that have been handed down to us through countless generations from our forefathers should be more proportionate and fitting than a late and arbitrary invention that is so greatly at variance with them.

3. *Its international character.* The fact that the metric system claims to be based upon the length of an arc of the meridian of Paris, and not upon the mean of all possible meridians, deprives it of its international character, and makes it distinctly French.

The advocates of the metric system claim, however, that it is used by half the civilized world, and that in this respect it may be called international. As it is used by neither Great Britain nor the United States, and as these are the great storehouses and workshops of the world, to which all of the people that use the metric system at home come to buy, it follows that these very people must be constantly using our weights and measures in their daily business transactions, and the Anglo-Saxon, not the metric, is really the international system

of weights and measures, a system which, modified perhaps, is destined to become even more universal than the English language.

Lastly, *the metric system is an intolerant system, an ally of despotism.* This is a free country, and, without any permissive Act of Congress, any man could use the metric system if it pleased him and those with whom he had dealings; but this is not enough, and the advocates of this system, which sprang from an atmosphere of violence and intolerance, would force it upon the people of this country whether they like it or not. It is a system uncongenial with Anglo-Saxon freedom, and will never be adopted by the people of that race, however much the scientific gentlemen that choose to bow the knee at its shrine may try to persuade them. It would indeed be a monstrous thing that we, who give laws to more than half the human race, should have to acknowledge ourselves incapable of perfecting our own system of weights and measures, and have to bow our necks to the dominion of this foreign yoke.

Let us then be chary of our homage to this idol of science, and if we must join its followers let it be under protest. I am sure that I voice the sentiments of many thousands in our profession when I say to our medical writers: "Don't spoil good books, written in English, for an English-speaking audience, by interlarding them with the hieroglyphics of a foreign tongue."

JOHN FORREST, A.M., M.D.

CHARLESTON, S. C.

CROUPOUS PNEUMONIA CAN BE ABORTED.

To the Editor of THE MEDICAL NEWS,

SIR: I read with considerable interest the article by Thomas J. Mays, M.D., in THE MEDICAL NEWS, September 24, 1892, page 348, headed "Can Croupous Pneumonia be Aborted?" My experience goes to show that this question can be answered most positively in the affirmative. I could give many more cases than the one here reported, but deem it unnecessary to occupy your valuable space with repetitions.

About the middle of April, 1872, I was called to see Miss M. E., nineteen years old, a rather tall, slim blonde, one of a number of dining-room girls at the Revere House, in Ionia, Mich. She was pretty sick for two weeks with a rather severe remittent fever, which left her much prostrated. On the sixteenth day I discharged her, leaving a prescription for a good stiff tonic, stock ale, and a generous diet. Two days later, at about 6 P.M., I was sent for in great haste to see my patient again. The evening before, while the proprietor and his family were at supper, the girl got out of her bed, slipped on a light wrapper and sat in a rocking-chair, in order to agreeably surprise her friends when they returned. The evening was cold and blustery, and she became much chilled before she went back to bed. At 5 A.M. on the following morning she was seized with a severe chill. The proprietor of the hotel, having been an army nurse, set to work to get her out of this condition. She was quite ill all day, and in this condition I found her. She was pillowed up in bed, lying on her back, as she could breathe better in that position; her face, but more especially her cheeks, were livid; the finger-nails were inclined to look bluish. The respirations were 46, the pulse 130, and the temperature 106°. A short, hacking, "choky" cough was present. On physical examination nearly the whole of the left lung was found to be involved in a process of acute inflammation. The crepitant râle could be heard over nearly the entire lung posteriorly. I knew well enough that the patient could not live in the debilitated condition in which she then was, if the disease followed its usual course; so the only chance was to abort the disease, if such a thing were possible.

Fortunately, I had received, a few days previously, Niemeyer's *Practice*, and, more fortunately, I had read the article on pneumonia, from which, for the first time, I had learned of the idea that pneumonia might be aborted by cold applications to the chest.

With the consent of the patient and her friends, I was allowed to try the "new treatment." A large tub was obtained, filled half-full of "chunks" of ice, and then nearly filled with water. This was stirred rapidly until the temperature of the water came down to 50° F. A large double woollen blanket was wrung out of this water and the patient was then wrapped in it from the chin to the toes. It was changed every thirty minutes until the temperature reached 104°, when the cold-pack was not allowed to come below the middle of the thighs. At 1 A.M. the temperature fell to 102°, when only the chest and upper part of the abdomen were enveloped; by 6 A.M. the thermometer stood at 98°, the pulse at 60, and the respirations at 16, with the face pale. The patient was then thoroughly rubbed, put into warmed blankets, hot bottles applied to her feet, and a half-ounce of brandy administered. She fell into a quiet sleep. At 10 A.M. I examined the chest again, and found no trace of the crepitant râle, and only a few moist râles at the base of the left lung. She received also four drops of the fluid extract of veratrum viride; then two drops every hour for four doses; then one drop until 4 A.M., when it was discontinued, it having lowered the pulse sufficiently. The patient made a rapid recovery.

In regard to veratrum viride I may say that I ceased using it many years ago, as it has no particular effect in controlling the temperature. In fact, the highest temperature I ever observed in acute lobar pneumonia was in the case of a young man in which the temperature ranged between 104° and 106.5° for ten days, notwithstanding the fact that the pulse was never allowed to go over 70 or under 60 by the use of veratrum viride.

I consider the application of cold to the chest a great, if not absolutely the greatest, therapeutic agent that we have in acute lobar pneumonia; but for various reasons —prejudice of patients or their friends, or the weak-kneedness of the doctor—few use it.

F. GUNDRUM, M.D.

ESCONDIDO, CAL.

DETROIT.

The Cholera Scare—State and Municipal Health-boards —Cesarean Operation—The Medical Societies— A Munificent Benefaction—The Medical Colleges.

IN view of the threatened approach of cholera, our city has recently occupied a position of considerable importance from a sanitary standpoint. Situated on the

Canadian frontier, and traversed by the principal trunk lines of the Dominion, the city has necessarily been in constant danger of admitting European emigrants who had not passed through the New York quarantine or undergone any sanitary inspection equivalent to quarantine at the hands of the Canadian authorities. This condition of things led to the proclamation of a twenty-day quarantine against all emigrants by both the State and municipal health-boards. From this action ultimately resulted one of those lively "rows" which always cause the finger of scorn to be raised at the medical profession, and singles it out as a profession incapable of unanimity when any great problem is uppermost. The State and municipal health-authorities immediately came into conflict with each other. The city Board of Health maintained that the State Board only had an advisory function in municipal affairs, and the State Board maintained supremacy for its action in enacting any sanitary regulation necessary for the protection of the whole State. Both State and city authorities, therefore, appointed inspectors, whose duty it is to visit all in-coming trains and quarantine suspects or emigrants unprovided with recognized sanitary passports. Sometimes the State official will arrest the progress of a number of emigrants, and then the city official will give them permission to proceed. We have now a large number of inspectors laboring at an aggregate cost of $75 a day, and if we reap any advantage from their services it is due rather to agreement among themselves as to what is proper than to any reconciliation of the authorities they represent. The state of affairs is not an edifying one, and gives the unbiased observer a very decided opinion as to the leakiness of the quarantine system generally. The abatement of the cholera scare is a relief to everybody, and we trust that if new danger arises we shall be able to present a more united front to the enemy.

Another successful case of Porro-Cesarean operation took place here lately. It was performed by Dr. J. H. Carstens, of this city; this is the second successful case of the kind the same operator has had this year.

The medical societies, of which we have a goodly number, have recently been organizing for their winter's work, electing their officers, and holding anniversary celebrations. The largest of these societies is the Detroit Medical and Library Association, having a membership roll of 165 active resident members. This society recently held a very successful anniversary dinner given in its honor by its retiring President, Dr. G. W. Stoner, of the Marine-Hospital Service. Dr. Stoner has been an able executive officer, and the society was never more flourishing.

Mr. Hiram Walker, a wealthy and benevolent gentleman, known, doubtless, to some of your readers for his connection with the celebrated "Walker Club," has donated $125,000 for the erection of a new building for the "Children's Free Hospital." The city is not in urgent need of new hospitals, but the charity thus remembered is a very deserving one, and will, doubtless, justify the munificence of its benefactor.

The medical colleges are in full operation. The class at the Detroit College of Medicine numbered 216 on the opening day, which indicates a largely increased attendance.

THE ACTION OF CHLOROFORM AS AN ANESTHETIC.

To the Editor of THE MEDICAL NEWS,

SIR: Having been asked to undertake a research at the expense of the Government of his Highness, the Nyzam of Hyderabad, India, with the object of reconciling, if possible, the conflicting views concerning the action of chloroform, I am anxious to receive from American physicians and surgeons records of any cases in which it was noticed that the heart stopped beating before respiration, or respiration stopped before the heart.

Notes concerning any such cases will be considered strictly confidential, provided the reporter states his desire that his name shall not be mentioned in the report of the research when it is finished. Otherwise due credit will be given for any information received.

Very truly yours, H. A. HARE, M.D.

JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

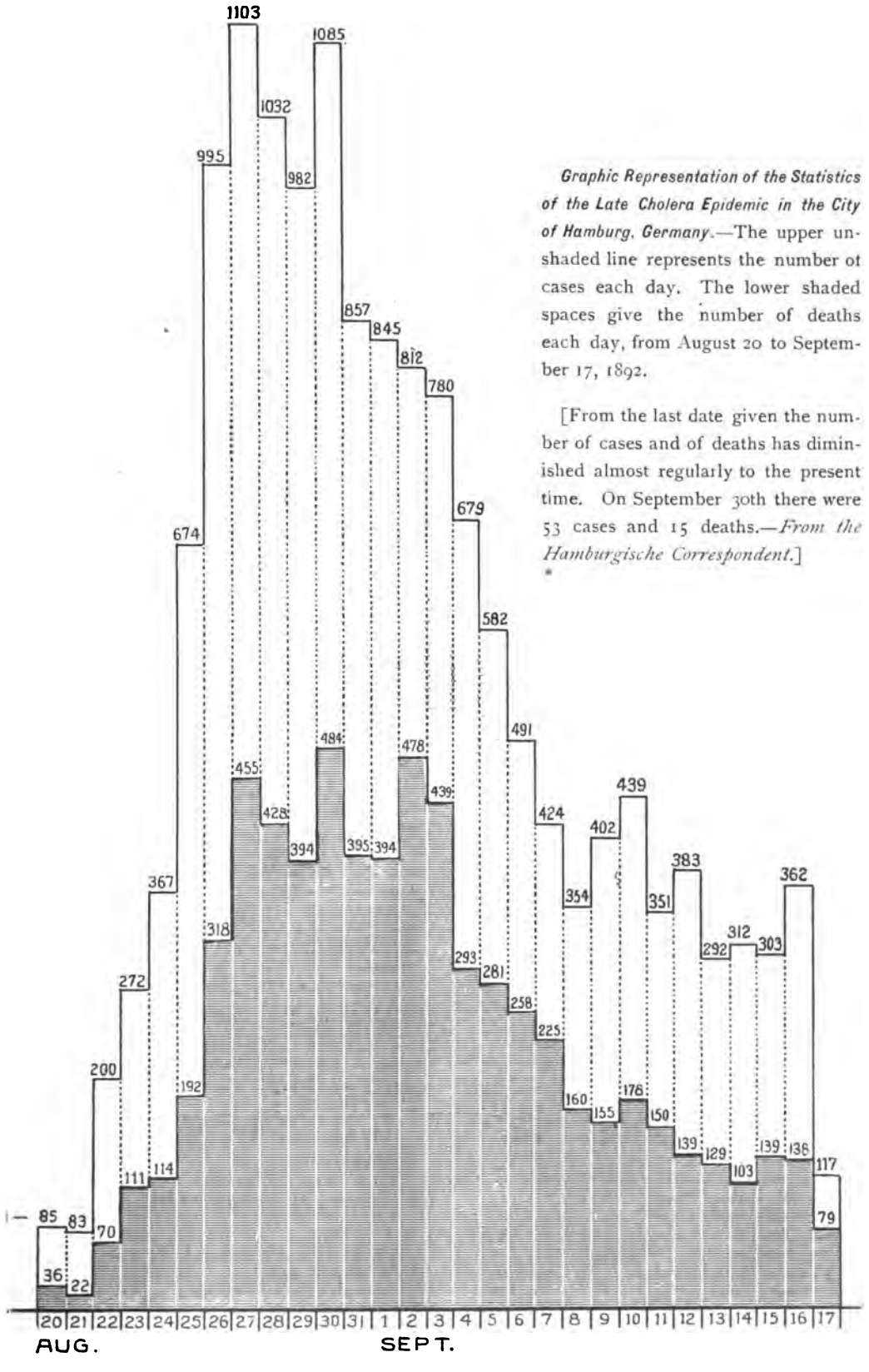
REVIEWS.

DISEASES OF WOMEN: A MANUAL OF NON-SURGICAL GYNECOLOGY DESIGNED ESPECIALLY FOR THE USE OF STUDENTS AND GENERAL PRACTITIONERS. By F. H. DAVENPORT, M.D., Instructor in Gynecology, Harvard Medical School. Duodecimo, 314 pages. Philadelphia: Lea Brothers & Co., 1892.

THE second edition of this work meets in every respect the requirements of a practical, concise hand-book of non-surgical gynecology. The author keeps constantly before him the distinction between a book of this kind and a complete work on gynecology and all its branches; for purposes of diagnosis and treatment he presents to the student all that is needed, and leaves for the specialist the more elaborate branches of pathology and surgery. His method of dealing with the subject of gonorrhea, impressing the reader with the importance of treatment and the evils of its neglect, is in accord with the teaching of advanced gynecologists and pathologists. It is to be regretted that the author fails to devote more space to the subject of antisepsis. He does not neglect it, but the importance of this subject, even in the non-surgical department of gynecology, calls for a careful exposition. The author's preference for Sims's speculum has thrown the uses of the other forms of specula into the background. This is a disadvantage, as the ordinary reader is not always in a position to avail himself of the assistance that is usually required when the Sims speculum is used.

ALASKANA; OR, ALASKA IN DESCRIPTIVE AND LEGENDARY POEMS. By PROF. BUSHROD W. JAMES, A.M., M.D. Philadelphia: Porter & Coates, 1892.

IN a pleasing style, always interesting, often elevated, never puerile, but never great, Dr. James has recorded his impressions of the natural beauties of Alaska, described the people of that country, and preserved their legends. The meter of Hiawatha, and of the English translation of the Kalevala, has been adopted, and is gracefully managed. The book is a decided addition to minor English literature, and places the author well forward in the ranks of the increasing number of medical men who have chosen verse-writing as their avocation.



Graphic Representation of the Statistics of the Late Cholera Epidemic in the City of Hamburg, Germany.—The upper unshaded line represents the number of cases each day. The lower shaded spaces give the number of deaths each day, from August 20 to September 17, 1892.

[From the last date given the number of cases and of deaths has diminished almost regularly to the present time. On September 30th there were 53 cases and 15 deaths.—*From the Hamburgische Correspondent.*]

NEWS ITEMS.

The American Public Health Association will hold its twentieth annual meeting in the City of Mexico, November 29 and 30 and December 1 and 2, 1892. Dr. Felix Formento, of New Orleans, La., is President; Dr. Domingo Orvañanos, of Mexico, Mex., and Dr. Walter Wyman, of Washington, D. C., Vice-Presidents; Dr. Irving A. Watson, of Concord, N. H., Secretary; and Dr. J. Berrien Lindsley, of Nashville, Tenn., Treasurer.

The American Electro-therapeutic Association.—At the recent meeting the following officers were elected for 1893:

President—Dr. Augustin H. Goelet, of New York.

Vice-Presidents—Dr. William F. Hutchinson, of Providence, R. I.; and Dr. W. J. Herdman, of Ann Arbor, Mich.

Secretary—Dr. M. A. Cleaves, of New York.

Treasurer—Dr. R. J. Nunn, of Savannah, Ga.

Executive Committee—Dr. W. J. Morton, of New York; Dr. G. Betton Massey, of Philadelphia; Dr. Robert Newman, of New York; Dr. Charles R. Dickson, of Toronto, Canada; and Dr. J. H. Kellogg, of Battle Creek, Mich.

Philadelphia was selected as the next place of meeting, on the Tuesday following the meeting of the Pan-American Congress.

BOOKS AND PAMPHLETS RECEIVED.

Treatment of Fractures of the Lower End of the Humerus and of the Base of the Radius. By John B. Roberts, A.M., M.D. Reprint, 1892.

Du Nombre comparatif, pour les Membres supérieurs et inférieurs de l'Homme, des Fibers Nerveuses d'origine cérébrale destinées aux Mouvements. Par MM. Paul Blocq et J. Onanoff. Paris: Gauthier-Villars et Fils, 1892.

Jacksonian Epilepsy. By Howell T. Pershing, M.D. Reprint, 1892.

Annual Announcement of the National Veterinary College of Washington, D. C., Session of 1892–93.

The Uses of Fever. The Dangers of Antipyretics in Typhoid Fever. By J. H. Musser, M.D. Reprint, 1892.

Grave Forms of Purpura Hemorrhagica. By J. H. Musser, M.D. Reprint, 1892.

Tuberculous Ulcer of the Stomach. By J. H. Musser, M.D. Reprint, 1892.

Some Clinical Remarks on Dysentery. By John H. Musser, M.D. Reprint, 1892.

On the Gastric Disorders of Pulmonary Tuberculosis. By J. H. Musser, M.D. Reprint, 1892.

The Limitations and the Powers of Therapeutics. By J. H. Musser, M.D. Reprint, 1892.

Contributions by Physicians to English and American Literature. By Robert C. Kenner, A.M., M.D. Detroit, Mich.: George S. Davis, 1892.

Retro-anterograde Amnesia, with Report of Two Cases. By J. T. Eskridge, M.D. Reprint, 1892.

How to Avoid Contracting Tuberculosis (Consumption). Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Tract I.

A Case of Osteo-arthritic Tuberculosis. By Charles H. Merz, A.M., M.D. Reprint, 1892.

Wintering in Egypt. By Frederick Peterson, M.D. Reprint, 1892.

A Dictionary of Psychological Medicine. Edited by D. Hack Tuke, M.D., LL.D. Vols. I and II. Philadelphia: P. Blakiston, Son & Co., 1892.

Foster's Encyclopedic Medical Dictionary. Vol. III: FASC-MINJ. New York: D. Appleton & Co., 1892.

Materia Medica and Therapeutics. By L. F. Warner, M.D. The Student's Quiz Series. Edited by Bern. B. Gallaudet, M.D. Philadelphia: Lea Brothers & Co., 1892.

A Manual of Organic Materia Medica. By John M. Maisch, Ph.M., Ph.D. Fifth edition. Philadelphia: Lea Brothers & Co., 1892.

Transactions of the Texas State Medical Association, Twenty-Fourth Annual Session, held at Tyler, Texas, April 26, 27, and 28, 1892. Galveston: J. W. Burson Company, 1892.

An American Text-book of Surgery, for Practitioners and Students. Edited by William W. Keen, M.D., LL.D., and J. William White, M.D., Ph.D. Philadelphia: W. B. Saunders, 1892.

A Manual of Obstetrics. By A. F. A. King, M.D. Fifth edition. Philadelphia: Lea Brothers & Co., 1892.

On a Condition of the Urine met with in Phthisis. By W. Hale White, M.D., F.R.C.P. Reprint, 1892.

Remarks on Thorough Operations for Cancer of the Female Breast. By W. Roger Williams, F.R.C.S. Reprint, 1892.

A Contribution to the Study of Some of the Diseases Peculiar to the Right Iliac Fossa. By R. Harvey Reed, M.D. Reprint, 1892.

The Necessity for Early Correction in Congenital Club-foot. By H. Augustus Wilson, M.D. Reprint, 1892.

Equilibrium of the Ocular Muscles. By Howard F. Hansell, M.D., and James H. Bell, M.D. Reprint, 1892.

Some Mooted Points in Obstetrics and Gynecology: President's Address. By E. E. Montgomery, M.D. Reprint, 1892.

Bromide of Ethyl. By E. E. Montgomery, M.D. Reprint, 1892.

On Surgical Shock. By John H. Packard, A.M., M.D. Reprint, 1892.

Circular of Information, 1892–1893. Bellevue Hospital Medical College, of New York.

Puerperal Mastitis. By J. C. Hoag, M.D. Reprint, 1892.

A Text-book of the Principles and Practice of Medicine. For the Use of Students and Practitioners. By Henry M. Lyman, M.D. Philadelphia: Lea Brothers & Co., 1892.

A Review of Twenty-five Consecutive Cases of Abdominal Section. By Reuben Peterson, M.D. Reprint, 1892.

Second Annual Report of the Midwifery Dispensary. New York City: Pusey & Troxell, New York, 1892.

A Valuable Experiment bearing upon Sympathetic Ophthalmia, with a Critical Review of the Subject. By Robert L. Randolph, M.D. Reprint, 1892.

Geographical Pathology. An Inquiry into the Geographical Distribution of Infective and Climatic Diseases. Two volumes. By Andrew Davidson, M.D., F.R.C.P. Edin. New York: D. Appleton & Co., 1892.

A Practical Treatise on Diseases of the Skin. By John V. Shoemaker, A.M., M.D. Second edition, revised and enlarged; illustrated. New York: D. Appleton & Co., 1892.

A Text-book of Morbid Histology for Students and Practitioners. By Robert Boyce, M.B., M.R.C.S. With 130 colored illustrations. New York: D. Appleton & Co., 1892.

Alice Mitchell, of Memphis. By T. Griswold Comstock, Ph.D., M.D., of St. Louis, Mo. Reprint, 1892.

The Trial of Alice Mitchell for Killing Freda Ward. Forensic Psychiatry. Reprint, 1892.

A Brief Résumé of the Carcinoma Organism Question. By A. P. Ohlmacher, M.D. Reprint, 1892.

Whooping-cough; its Management; its Climatic Treatment. By J. H. Musser, M.D. Reprint, 1892.

A Plea for the Medical Expert. By L. Harrison Mettler, A.M., M.D. Reprint, 1892.

A Clinical Lecture, delivered at the Second Annual Meeting of the Association of Military Surgeons of the United States. By N. Senn, M.D., Ph.D. Reprint, 1892.

Ninth Report of the Committee on Lunacy of the Board of Public Charities of the Commonwealth of Pennsylvania, September 30, 1891. Harrisburg: Edwin K. Myers, State Printer.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, OCTOBER 29, 1892. No. 18.

ORIGINAL ARTICLES.

THE TREATMENT OF CLUB-FOOT.[1]

BY ALBERT H. FREIBERG, M.D.,
OF CINCINNATI, OHIO.

THE methods employed in the treatment of club-foot are almost as numerous as those who treat it. It is the more comprehensible on this account that all methods at present employed are really modifications and combinations of others gone before. Plaster-of-Paris, soluble glass, splints, orthopedic appliances of more or less complicated character, surgical procedures involving operations, subcutaneous or open—these have all been used and are being used in various combinations, and there can be no doubt that club-foot can be often successfully treated by almost any of them. As young men, however, there will come to some of us, at least, a time when we shall have to select a method from the immense number with which to treat a given case, and it is with this in view that I present this paper. I have had the opportunity in the past few months of seeing quite a large number of cases in the clinic of Professor Wolff—cases freshly treated, which had presented themselves during the treatment and after its discontinuance—and I desire to convey to you the impressions that these cases made upon me.

It might be well to cast a glance at the principles on which the treatment is founded. Every case of *true* club-foot is dependent upon abnormal shape of the foot skeleton, and this is as true of the congenital as of the acquired forms; the changes of the soft parts are of secondary nature. The changes found in the bones of the foot never involve one bone alone; all are involved to a greater or less degree, and especially is this true of the tarsal bones.[2] Julius Wolff has shown[3] that the shape of every bone, as well as its internal architecture, are the expressions of the static demands made upon it; further, that the internal architecture and external form always correspond with one another. He has also shown that we are no longer to consider the bones as mere levers, of an inert material, but as living tissues, and as capable of accommodating themselves to different changes as are our other tissues. Where weight is to be borne, where strain is to be sustained, bone-tissue is laid down; and on the other hand, where bone-tissue is no longer needed because of changed statical conditions, it disappears. Thus it is, as Wolff has pointed out,[1] that the hump left on the dorsum pedis by the correction of a club-foot disappears spontaneously, without making pressure upon it with the dressing.

As in so many other conditions, one principal task is to merely modify the direction of constantly acting forces and maintain them so for a sufficient period of time; Nature will do the rest. We are not to be satisfied with making a foot appear normal; if the bones have not changed their shape, if they do not stand in proper relation to the extremity whose weight they are bearing, our treatment will be in vain, for the patient will have a recurrence of his deformity soon after discarding our appliance. On the other hand, if our treatment has been successful, if we have the bones of the foot changed to such a form as is normal for their function, there can be no recurrence; for in those lines in which pressure or tension occurs, Nature has laid down bone-trabeculæ of sufficient strength, and she has given the bone a corresponding outward form.

It is not so simple a process, this change in the form of the bones, as Volkmann's theory would make it; atrophy from pressure, and growth in the direction of least resistance do not explain it; rather the opposite is true.[2] When a club-foot recurs after treatment, we may assume that it was not entirely cured, for were it so the use of the limb would tend toward making its new form permanent instead of the contrary. I must except from this last statement the paralytic club-foot; the prognosis here depends entirely upon the paralysis, or the measures taken to counteract it.

Our indications for treatment, then, are really two. First, we must bring the foot into proper relation with the rest of the extremity and the body; and secondly, we must retain it there in *functional activity* for a sufficiently long time to enable the bones to undergo the necessary metamorphosis as a result of their function. From these indications I think it will be apparent that any form of appliance, to answer our purpose, must be of a more or less permanent character. All shoes and splints which

[1] Read before the Association of American Physicians, in Berlin, June 30, 1892.

[2] Hoffa: Lehrb. der Orthop. Klin., 1891.

[3] Gesetz der Transform. der Knochen. Berlin, 1892.

[1] "Ueber d. Ursachen u. d. Behandl. d. Deformitäten, insbes. der Klumpfusses, Berl. klin. Wochenschr., 1885, No. 12.

[2] Wolff, quoted by Hoffa, loc. cit., p. 20 et seq.

are to be taken off at times, such as during sleep, fall short of our demands. We wish the weight of the body, which is our curative force, to work constantly and always in the same lines. The requirements which we make are met by no other material as well as by the plaster dressing if properly applied, and to properly apply it for the treatment of club-foot means merely the mastery of certain details which should be not at all difficult for any physician capable of properly dressing a fracture. Plaster-of-Paris in the treatment of club-foot is by no means new, but it is the development of minute details in its application, and proper attention to all of them, which make it a method, and the success that follows is in proportion to the care and skill used in treatment, rather than to the degree of deformity. A plaster dressing may sometimes be properly applied in one or two sittings; not infrequently four or five are required, and occasionally several more. The method, therefore, calls for the greatest patience on the part of physician and patient; but few physicians will begrudge this when once they have used it properly, and still fewer patients with the more severe forms of club-foot will spend much time in choosing between a plaster treatment, that is perhaps tedious for a while, and one of the bloody operations.

The question of tenotomy must in each case be decided for itself. Quite a number of cases of club-foot can be treated without any operation upon the soft parts; these are usually the slight deformities in very young children. In those cases, usually of more marked deformity, in which the tendo Achillis and the aponeurosis plantaris seem to offer any considerable resistance to the correction, one or both should be incised subcutaneously in the usual manner. Rarely does it become necessary to divide any of the other tendons of the foot, the tibialis posticus, or the flexors. The tenotomy having been made, it is advisable to apply aseptic dressings to the wounds and postpone the application of the plaster for two or three days.

We now come to the most important part of our subject—the technique of the plaster dressing for club-foot. Speaking in general terms there are two methods of treatment by plaster dressing, and these are radically opposed to one another. König's method[1] consists essentially of two steps: the redressement and the application of the plaster. The forcible redressement is the leading idea of the method, as König describes it, and it is his intention from the start to tear ligaments, to bend or even break bones. He himself says that the difficulties do not lie in the degree of deformity, but rather in the physical state of the bones and the firmness of the ligaments.

[1] König: Lehrb. der spec. Chirurgie, Bd. iii, Berlin, 1889.

The redressement is made as follows: The patient, having been anesthetized, is placed on his side and an assistant fixes the knee firmly. The operator then places the most prominent convex portion of the foot (usually the region of the calcaneo-cuboidal joint) upon a suitably protected wooden fulcrum and seeks, with one hand grasping the heel and the other holding the anterior part of the foot, to use the weight of his body in forcibly correcting the deformity. According to König, in order that the procedure shall be of avail a crackling sound should be heard. The external convexity of the tarsus having been thus reduced, the foot is forcibly brought into dorsal flexion and abduction. König advises against doing too much in one sitting, and says that the entire correction usually occupies two or three operations. After each sitting a plaster dressing, with a cotton substratum, is applied; this dressing is to accomplish nothing further than holding the ground obtained by the forcible redressement. "Elevation and all other precautions against considerable swelling should not be neglected." The sittings are repeated at intervals of two or three weeks. In many cases, principally in adults, the force required is too great for the hand, and various instruments have been devised for making the correction. König recommends Bradford's instrument.

The method of Wolff differs from this radically; instead of purposely using sufficient force to tear ligaments and crush bones, instead of completing the redressement in a small number of sittings, just the opposite is done. The force used should never be sufficient to causing gross solutions of continuity in the tissues, and the number of sittings should be sufficiently great to accomplish this. What Wolff attempts to produce by his redressement is subluxations of the tarsal bones; the form of the bones is not to be changed by the operation itself; this is essential. The bones are to be changed by the change of function, by being placed in different relations with one another and with the extremity. The following is the method of applying the dressing as it is done at Wolff's clinic:

Excepting for very slight degrees of club-foot and in very young children, anesthesia is necessary. The patient, anesthetized, is placed on his back upon the table, and, with a blue pencil, the middle of the patella is marked. An assistant fixes the knee in such a way as not to hide the patella. The operator now seizes the anterior part of the foot with one hand and, placing his other hand upon the heel, seeks to correct the deformity by first twisting the foot outward as far as possible, pronating it, then making dorsal flexion, and finally abducting the front part of the foot by bringing the heel toward the median line of the body.

Having thus secured the foot in its proper position, or at least as nearly so as can be done in this one sitting without the use of too much force, the hands of the operator are carefully replaced by those of another assistant, holding the ground gained as nearly as possible. The operator then takes strips of rubber adhesive plaster, about one inch wide, and uses them to hold the foot in position. The first strip begins on the upper surface of the foot close to its inner edge and posterior to the ball of the great toe; it is then carried across the sole, up the outer side of the foot and a short distance up the leg without making much of a spiral around it. The second strip is placed anterior to this in like manner; the third strip begins at the ball of the great toe, and a fourth strip runs along the base of the toes. A greater or less number of strips than this may be required, according to the size of the foot and the resistance offered by it.

The two assistants now raise the limb from the table, the one still firmly fixing the knee, the other holding the foot by the toes, and the operator pads the foot and leg as evenly as possible with cotton up to the tibial tuberosity. With plaster bandages that are not too wide, a smooth dressing is applied, encasing the foot and leg; the tips of the toes are left uncovered, excepting the great toe; this is almost entirely covered in. The greatest care must be taken not to make the dressing too tight, and to make it as light as is compatible with strength.

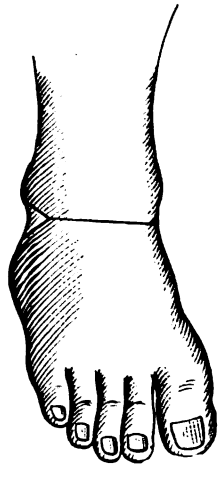
As soon as the bandage has been applied the operator seeks to correct the deformity as much as possible; the assistant with one hand pushes the heel toward the middle line, and with his other hand presses the outer edge of the foot upward. The foot is thus held in position until the plaster is quite firmly set. If the foot is in proper position, a sagittal plane passing from the anterior superior iliac spine through the mark in the patella and through the center of the ankle-joint must strike several centimeters inside of the tip of the great toe.

Two fenestra are now cut in the bandage as a matter of routine. Experience has shown that with a dressing thus applied two points are especially liable to decubitus: one point is the external surface of the ankle-joint, the other the internal surface of the great toe, and especially at the metatarsophalangeal articulation. The external side of the ankle-joint, before a convex surface, has been converted by the redressement into a sharp angle, and there is now here a superfluous amount of skin; into this angle a spur of plaster bandage projects. Over this an elliptical fenestrum is made, and this is also done at the inner side of the great toe, but the end of the toe should always be left covered, as this is one of the strong places in the dressing. That the dressing shall be considered satisfactory requires that the toes lie perfectly naturally beside one another and that the middle phalanges of the outer four toes be uncovered; to accomplish this is by no means the simplest task of the treatment and it not seldom requires considerable cutting and patching before entire satisfaction is obtained. However, too much time can scarcely be spent upon this part of the dressing, as it cannot possibly be comfortable to the patient unless the toes lie properly. Further alterations at the toes can usually be undertaken on those days on which no redressement is made.

Some pain is usually complained of after awakening from the narcosis and the patient often fails to sleep the first night, but unless the redressement has been carried too far in this one sitting the pain is not excessive. If pain is still present on the next day a fenestrum may be cut out at the painful spot. Otherwise the dressing is left undisturbed until the next sitting.

The graduated redressement, the correction of the deformity in several sittings, without causing anatomic lesions other than altering the relations of parts to one another, is the characteristic of Wolff's method; when this is accomplished, by making repeated alterations in the same plaster dressing in the way to be described, it constitutes the so-called "Ettappenverband." The second sitting may, then, occur in several days, usually on the second or third, sometimes not until the fourth. It is proceeded with as follows: With a large sharp knife a large, wedge-shaped piece is cut from the dressing on the outer side of the ankle-joint, and the ends of this continued in a line around the joint. (Fig. 1.) This is cut through to the cotton padding and

FIG. 1.



the dressing is now in two separate pieces, and while the wedge-shaped defect in the plaster allows the further correction, the foot cannot slip back into its

old position; great care must be taken not to make the linear cut too near the heel, lest the foot be able to slip in the dressing and thus defeat our object and make a completely new dressing necessary. An assistant grasps the upper section of the dressing, drawing it away from the lower, at the same time being careful not to allow a rotation of the leg in the dressing; the operator then corrects the deformity still more by moving the foot encased in the lower piece and the dressing is fixed in its new position by an additional plaster bandage. Care must be taken lest a fold of skin be caught between the two pieces of the dressing when brought together. If a very large correction is still to be made anesthetics may be necessary; most often they are not.

In this way the same dressing is altered a sufficient number of times until the patient stands in his dressing with the foot in satisfactory position, and satisfactory position means that the foot shall be slightly pronated, that it shall be dorsally flexed, abducted, that the toes shall lie normally beside one another, and that the patient shall be free from pain. It is a fundamental rule of the treatment that whenever pain is complained of a window shall be cut out at the painful spot. In infants this has often its difficulties, of course, but the bandage should rather be removed entirely than the risk of decubitus be run. When the position of the foot is satisfactory we are ready to put the finishing touches on the dressing: First, all fenestra are covered over with plaster bandage. When this is hard the plaster dressing is pared off wherever thicker than necessary and is made as seemly as possible. Strips of pine shaving are now glued on to the dressing in order to strengthen it, and these strips are held by crinoline bandage painted over with carpenter's glue. When the glue is hardened, a very light soluble-glass bandage covers the dressing. The patient now has shoes made to fit over the dressings and starts to walk immediately. By working at the feet alternately the most severe cases of double-sided club-foot can be corrected and the patients be walking in the dressings within four weeks at most, and in cases easy of treatment within one week.

The patients are now instructed to work as much as is agreeable to them, but are kept under occasional supervision, lest the dressing weaken or the foot change its position. In this case it is best to make a new bandage, as only one sitting will be required, and an opportunity is given to measure the degree of progress accurately. This does not, however, usually occur. With the exception of very severe and intractable cases, when no mishap occurs to the dressing, the patients are cured when it is taken off. The length of time during which the dressing must be worn varies exceedingly, of course—from a few weeks to a year, according to the age of the patient rather than to the degree of deformity. When the dressing is finally taken off, a course of massage, bathing in hot water, and passive movements, is indicated.

What shall be considered a satisfactory result in the treatment of club-foot? If after the patient has had the benefit of massage, passive movement, and after he has become accustomed to walking without the dressing, if he walks with the sole fully touching the ground, as it normally should, if he is able to dorsally flex the foot and is able to pronate to some extent, he may be pronounced cured, and he will not have a recurrence. If the patient is unable to fulfil these requirements, or any one of them, there is always the possibility of recurrence, because there has never been a cure and the treatment should be continued accordingly.

This is Wolff's method, and in his clinic all cases of club-foot are treated in this way. The congenital club-foot of infants but a few weeks old, as well as that of adults, is treated thus and with results remarkably satisfactory. That forcible redressement, in the sense that König uses it; that the various operations, such as Phelps's, the wedge excisions, enucleations of the talus or other bones are necessary for the cure of even extreme cases of club-foot is boldly denied by Wolff, and in proof he offers a series of cases which upon careful examination will convince the most skeptical. The difference in the two methods of treatment by plaster is nowhere better demonstrated than by the fact that whereas König advises the sittings to be repeated at intervals of two or three weeks, Wolff repeats them at intervals of as many days; that while König feels bound to advise elevation of the limb and other precautions against swelling, Wolff's patients are able to stand in the dressing the day after its application.

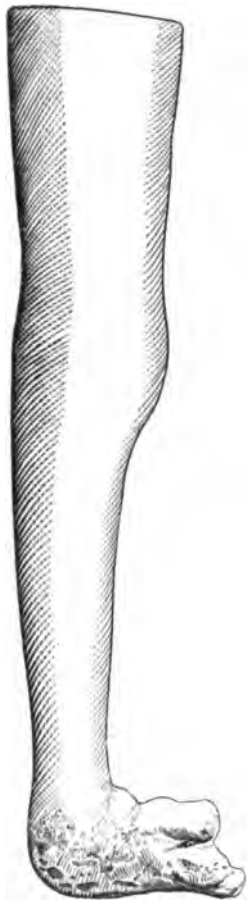
The case[1] which Professor Wolff has kindly permitted me to show you this evening demonstrates admirably the possibilities of the method and the permanency of the result. The patient, now twenty-eight years of age, was treated eight years ago, and the plaster cast which I present will convince you that his deformity was of the severest type. Although this method of treating club-foot was not yet fully developed, and although the deformity was corrected more rapidly and with more violence than was necessary, I think there is no doubt in your minds that the result is ideal. This patient was twenty years of age when the treatment was instituted, and Wolff has demonstrated in his communications on the subject that a very much greater age by no means places the result in jeopardy.[2]

[1] Case of "Gerstmann" Langenbeck's Archiv, Bd. xxxiii, Heft 1.

[2] *E.g.*, cases described in Berl. klin. Wochenschr., 1889, No. 8.

Lastly, in order to inform you more accurately how a case is handled, I shall mention the notes in the case of a boy, nine years of age, of whose right leg

FIG. 2.



and foot I present a cast. (Fig. 2.) The condition was congenital and almost the same in both feet.

May 24. The tendo Achillis and the plantar fascia of both feet were incised subcutaneously.

27th. Plaster dressing on right foot.

31st. Plaster dressing on left foot.

June 4. Redressement of right foot.

One week's suspension of treatment because of the Surgical Congress.

14th. Redressement of left foot.

15th. Redressement of right side.

17th. Redressement of left side.

21st. Redressement of left side.

26th. Discharged from the clinic, after shoes had been made and had been worn for a day and found perfectly comfortable. The treatment embraced really three weeks, and might have been done in less time. On the days intervening between those mentioned some improvement was usually made, straightening the toes, making or closing a fenestrum. The patient left the clinic able to walk with great ease, and I will ask you to believe me when I say that the feet were in as splendid position as could be desired. I am, unfortunately, not able to show the patient himself, but from what I have seen I feel confident that in six months he will be entirely relieved of his deformity.[1] Such feet as these are certainly of the most severe form.

The most difficult cases to treat by this method seem really to be cases in infants with very short, fat feet; difficult because they must be handled with great tenderness and because it often requires the greatest patience until a dressing is secured which holds the foot in the desired position. Whether the club-feet of very young infants should be treated with plaster dressing I regard as still an open question, in view of the difficulty of applying an efficient dressing and in recognition of the great good often to be accomplished by passive movements alone. If the latter have been unsuccessfully tried the case is still amenable to the treatment by plaster dressing.

It occasionally happens that some time after the dressings have been left off, the foot again shows a tendency toward supination. When this occurs, we are to blame; the dressings have been removed too soon, but an easy remedy is the application of another dressing for a time; as already remarked, if the club-foot has been *cured* it will not recur.

That no anatomic lesions of consequence occur during the treatment by this method is evidenced by the fact that the patients can all bear their weight upon the extremity the day after application of the dressing; had bones been fractured, had ligaments been torn, they would scarcely be in a position to do this. The dressing does not incommode in the beginning more than would a new shoe; afterward the patients grow perfectly accustomed to it.

In conclusion, I desire to express my deep sense of obligation to Professor Wolff for his very kind assistance in my study of the subject, and for the use of his clinical material.

BERLIN, JULY 12, 1892.

REPORT OF A CASE OF LARGE INTRA-CRANIAL TUMOR (WEIGHT, FIVE OUNCES) COMPRESSING THE LEFT FRONTAL LOBE.[2]

BY WILLIAM H. MORRISON, M.D.,
OF HOLMESBURG, PA.

I REGRET to say that the specimen of intra-cranial tumor which I present to-night is mainly of pathologic interest. A study of the case from which

[1] The patient reported at the clinic several days ago, and is walking without any pain or inconvenience whatever.

[2] Read before the Philadelphia Neurological Society, October 24, 1892.

it was removed teaches little in regard to symptomatology, and points out few indications for treatment. It adds another to the long list of cases already reported of large lesions of the frontal lobes without symptoms. The patient was under my care for a short time several years ago, and again for two days before his death, but in the intervening period I had no opportunity of studying his condition. He was under treatment for short periods by various regular and irregular practitioners, and at one time spent six weeks in the Pennsylvania Hospital, but during the two years preceding death he was subjected to no scientific study. This is unfortunate, for doubtless a careful study of this patient would have thrown some light upon these obscure cases, and have helped to give us aid in the recognition of lesions of this part of the brain. The history, as I shall give it, is made up principally from the statements of his friends and from the notes in the case-book of the Pennsylvania Hospital.

A. C., colored, about forty years of age, came under my observation in April, 1886. At this time he was a coachman by occupation, but had been in the army and had also served as a sailor, and was said to have suffered shipwreck on one or two occasions. He complained of pains in the head, which I attributed to localized syphilitic meningitis, and placed him upon potassium iodide. I saw him three or four times in the next few weeks, and then he passed from my observation and was not seen again until two days before death. In the summer of 1888 he had an epileptiform convulsion, which was the only convulsion in the history of the case. The pains in the head returned and gradually increased in severity, and were especially marked on stooping. In August, 1889, he gave up his work, but for a month before this his friends had noticed that his speech was slower than usual. Shortly after quitting work his eyesight began to fail, and soon he was unable to recognize persons or objects at a short distance from him. The pain seemed to be rather in the occipital region, although on stooping pain would be felt in the frontal region. During the last six or nine months of the history the pain was not so severe, and at no time does it seem to have been a marked symptom. A few months after quitting work he was admitted to the Pennsylvania Hospital. The notes of the case in the record-book of that institution are as follows:

"A. C., colored, coachman. Admitted December 9, 1889. Discharged January 20, 1890. Diagnosis, neuro-retinitis.

"Mother and father died of old age; other members of the family living and healthy. He says that he was never sick before. There is no venereal history. The present sickness began eight months ago, when he says that he became stiff all over, entirely preventing him from getting about. This cleared up and he began to have some frontal headache. Four months ago he began to lose his eyesight gradually. The headache continued. He had chills one year ago, but has had no return of them. He never had any weakness in the arms or legs. There has been no other pain, nor has there been loss in weight.

"On admission he is found to be a large, well-nourished man, the temperature 101°, pulse 102, respirations 26, the tongue large, flabby, and coated white; the breath offensive. There is no cough. He has now almost lost sight, but can tell day from night. He says that if he looks in one direction for some time he can faintly outline the object. The tongue is protruded straight. Hearing, taste, and smell seem natural. The fingers when extended seem steady. There is decided mental hebetude, and when asked a question it takes him a long time to formulate an answer. His memory has been steadily failing and is now quite bad. No anesthesia can be detected. He says that he never received any injury to the head. He lies quietly in bed, apparently uninterested in what is going on about him.

"The heart sounds, as heard at the apex, are clear and sharp, but heard at the aortic cartilage, the first sound is indistinct. No murmur can be detected. The lungs and abdominal organs are normal.

"TREATMENT. Potassium iodide in 10-grain doses, three times a day. Calomel, in $\frac{1}{6}$-grain doses, every hour during the day.

"*December 10.* The bowels have not yet been moved. Temperature down to normal. Six P.M. Urine examined and found to have a specific gravity of 1032; acid; no albumin or sugar.

"*12th.* Bowels were moved thoroughly yesterday; mental condition the same.

"*15th.* The bowels have been very costive, requiring calomel, salts, enemata, etc., to move them. No change in the mental condition or sight.

"*17th.* The eyes were examined by Dr. George C. Harlan. He found no light-perception. In the right eye there is extensive hemorrhagic retinitis with superficial and deep hemorrhages scattered over the fundus, rendering it difficult to see the disc. The margin of the disc is obliterated. There is extensive edema. Near the macula are several yellowish-white patches suggestive of hemorrhage. The condition of the left eye is about the same.

"*19th.* Urine again examined. Specific gravity 1018; amber-colored; acid; no albumin; no casts.

"*27th.* Thinks that he can see somewhat better, especially at a distance of about six feet.

"*January 9, 1890.* Eyesight about the same. Passes urine involuntarily.

"*11th.* Yesterday, on awakening, he saw distinctly for about five minutes. This is the only time since admission that this occurred.

"*16th.* Sight is certainly better, especially in the mornings. He has complained of some pain in the eyeballs for the past ten days.

"*20th.* On the 17th he had a chill with a temperature of 101°, without apparent cause. The next morning the temperature was normal, and has remained so."

The patient then left the hospital.

After leaving the hospital he received no medical attention. The principal trouble observed by the patient and his friends was the loss of eyesight, which had sunk to simple perception of light. During the day he sat about the house, and at night he was able, unaided, to go up three flights of stairs. In fact, a few days before his death, he dressed himself and came down stairs without assistance. There was no motor disturbance in any part of the body—no weakness of the muscles. Intelligence did not seem to be materially impaired. His memory for past events was retained. In illustration of this it may be stated that two weeks before his death he was visited by friends whom he had not seen for years, and conversed with them intelligently and rationally about events that had occurred ten years or more previously. For recent events, however, memory was defective. The drawling speech continued, and to this was added slight amnesic aphasia. Occasionally, he would be unable to remember a certain common word which he wished to use, but when it was suggested he would recognize it and be able to pronounce it without difficulty. Hearing was unaffected. The sense of smell was good, but whether or not there was any difference between the two sides could not be ascertained. The bowels and bladder acted normally.

I was called to see him at midnight on December 24, 1891, the statement being that he was in a stupor from which he could not be roused. When I reached the house, however, he was awake. He recognized me when I spoke to him, and his tongue was protruded normally. He lifted first one arm and then the other, and moved the legs at command. He had high fever, injected conjunctivæ, and other symptoms which caused me to believe that he was suffering from an attack of influenza, prevalent at that time. The following day his condition was about the same, but next day he passed into a comatose condition and died that evening.

With the assistance of my brother, Fred. S. Morrison, the autopsy was made fourteen hours after death, the examination being confined to the head. The body was that of a stout, well-nourished man, with nothing abnormal on inspection. The scalp was fully one-half inch in thickness, there being a quarter-inch layer of fat. The bone was of normal thickness, and the dura but slightly adherent to its inner surface. The dura was found strongly adherent to the pia mater along each side of the longitudinal fissure, and a portion of it was removed with the brain. A large tumor was at once evident in the left frontal region. The brain and tumor were removed as carefully as possible. It was found that the tumor had eroded the left half of the cribriform plate of the ethmoid, so that there was a direct communication between the interior of the skull and the nasal cavity.

From the inner surface of the frontal bone, one inch to the left of the median line and one inch above the orbital plate, there sprang a conical projection of bone. This had a base one-half inch in diameter, and projected three-eighths of an inch above the surface of the bone. Corresponding with this exostosis, there was a depression in the dura mater and in the new-growth. Inspection of the external surface of the bone showed no depression and no evidence of injury.

Examination of the brain and tumor, after removal, showed that the growth had occupied the greater part of the left anterior fossa of the skull. The mass is irregularly pyramidal in shape, its base, corresponding with the left half of the frontal bone, being attached to the inner surface of the dura. The base of the growth measures two and one-half inches vertically by three and one-quarter inches transversely. The tumor extends backward into the frontal lobes two and three-quarters inches. After preservation in alcohol for five months, the weight of the mass is five ounces, its volume nine cubic inches, and it displaces five fluidounces of water. The orbital plate of the frontal bone was not displaced, and there was no exophthalmus. The tumor was not adherent to the brain-tissue, but seems to be a dural tumor originating at the position of the projection of bone already mentioned, and thence extending gradually, pressing backward the frontal convolutions. Internally and externally the tumor was covered by cerebral tissue, but underneath, the brain-tissue has been displaced and absorbed in the position of the cribriform plate, and

the bone itself has been destroyed. The tumor was readily lifted from its cavity, and, in fact, care was necessary to prevent it from falling out when the brain was removed.

The growth has been examined microscopically by Dr. C. W. Burr, who pronounces it to be a spindle-celled sarcoma.

The special features of this case, as elicited by post-mortem study, are: The evidences of a slowly-developing and steadily-progressing lesion, accompanied by pain in the head, not distinctly localized, not especially severe;* a single epileptiform convulsion, neuro-retinitis, loss of memory, slowness of mental processes, slowness of speech, and slight amnesic aphasia. To these may be added absence of motor disturbances, and absence of signs of involvement of the special senses other than sight.

Referring to lesions in this region, Dr. Seguin says:[1]

"Focal lesions of the frontal lobe produce no specific symptoms, and cannot be directly diagnosticated, unless they extend as far caudad as the base of the second or third frontal gyri. The forward mass of the frontal lobe, including the orbital lobule, appears to be inexcitable and insensitive. Even psychic symptoms do not necessarily appear after the loss of a considerable amount of cerebral substance from this region. The diagnosis of tumors, abscesses, etc., in this part of the brain must be made by taking into consideration the seat of the pain, the presence of cicatrices or other etiological indications, the general signs of cerebral irritation and compression, but, after all, usually by exclusion. In some cases unilateral anosmia is produced."

Dr. Mills, speaking of lesions in this part of the brain, says:[2]

"Lesions of the prefrontal lobe, although this is one of the so-called latent districts of the brain, have, in a large percentage of the carefully-studied cases, shown distinct manifestations. The symptoms are largely psychical, and, unfortunately, the physician is not usually well trained to study such phenomena. Mental disturbances of a peculiar character occur, such as mental slowness and uncertainty, want of attention and control, and impairment of judgment and reason. Closely studied, the inhibitory influence of the brain both upon psychical and physical action is found to be diminished. Memory is not seriously affected, although a continuous train of thought cannot well be followed, and complex intellectual processes cannot be thoroughly performed."

A review of the history of this case, as thus imperfectly elicited, seems to indicate that, had the patient been under careful observation, a diagnosis of the probable seat of the growth would have been made, and, possibly, with sufficient certainty to have rendered an exploratory operation justifiable. Could the tumor have been located some months or a year before death, its removal would have been comparatively easy.

As an example of a tumor in almost exactly the location of the one shown to-night, and in which the growth was successfully located and removed, I may briefly refer to a case reported at the Ninth International Medical Congress, by Dr. F. Durante,[1] of Rome, Italy:

"The patient, a woman, aged thirty-five years, came under observation in May, 1884. Three months before, the left eyeball had begun to be displaced downward and outward. For a year or more the sense of smell had been lost. Memory had become impaired, particularly in regard to remembering names, and she experienced a peculiar sensation of vacuity about the body, which caused her to feel uncertain in her movements. There had been a change in disposition. From being happy and bright, she had become sad and melancholic. Dr. Durante diagnosticated a tumor of the anterior lobe of the brain, basing the diagnosis on the loss of memory, the absence of the sense of smell, the change in disposition, and the displacement of the eyeball. The skull was opened above the orbit by means of a sharp scalpel and hammer, and a tumor weighing seventy grams (two and one-half ounces) was enucleated. The patient made a rapid recovery, with return to the normal mental condition, and was living and well three and a half years later."

Since the preparation of this paper, a case under the care of Dr. Ferrier has been reported,[2] and, as in many of its features it is very similar to the one recorded to-night, I have appended a brief abstract of it. In the symptoms manifested, in the mode of death, and in the location of the growth, the two cases are almost identical:

"The patient, a male, forty years of age, was admitted to the hospital June 30, 1891. Seventeen years before he had been thrown from a carriage, and had remained unconscious for a week. Following this accident, however, he remained perfectly well until a few months before coming under observation. The symptoms noted were great failure of memory, incapability for sustained effort, marked apathy, and a tendency to fall asleep. There were no indications of motor paralysis, though it occasionally appeared as if there were slight relative weakness of the right angle of the mouth. Vision, hearing, and tactile sensibility were good. Owing to the mental condition, no satisfactory conclusion could be reached in regard to smell. Ophthalmoscopic examination revealed typical double optic neuritis. The patient denied the existence of pain, although there seemed to be a slight tenderness over the left fronto-parietal region on strong pressure. There was no material change in the condition until October, when he exhibited greater dulness. He did not know where he was, frequently could not tell his name, and, when asked to sign his name, wrote nonsense. The right pupil was slightly larger than the left. There sometimes appeared to be relative weakness of the right leg, and the gait in general was tottery. This condition continued practically unchanged until January 23, 1892, when, during the prevalence of the influenza epidemic, the patient developed symptoms of this malady. The next day the temperature had reached 104°, and he died comatose on the 28th, the temperature having risen to 106° immediately before death. At the autopsy it was found that the anterior portion of the left frontal lobe was occupied by a large tumor, three inches from above downward, and two

[1] Pepper's System of Medicine, vol. v, p. 89.

[2] Transactions of the Congress of American Physicians and Surgeons, vol. i, p. 272.

[1] Transactions of the Ninth International Medical Congress, 1887, vol. i, p. 570.

[2] Lancet, June 4, 1892.

inches from before backward. The dura mater was adherent to the front of the growth, and it was thought probable that the growth had commenced in this structure and grew backward, compressing the frontal lobe."

Dr. Ferrier, in commenting upon this case, in regard to tumors in this situation, says:[1] "It is not until the tumor presses backward and, directly or indirectly, disturbs the functions of the central and posteriorly situated convolutions, that motor or sensory symptoms declare themselves; and until these have occurred, or until there are signs of implication of the nerves or other structures in the anterior fossa, an accurate diagnosis of the position of the tumor cannot be made with certainty, inasmuch as loss of memory and impaired power of concentration may also be produced by diffuse lesions or lesions which cause general disturbance of the brain. Of the structures in the anterior fossa, the olfactory tract is especially apt to suffer, but, on account of our patient's mental condition, it never could be ascertained with certainty whether there was any implication of smell in the one nostril or the other. During life, however, I had expressed the opinion that the case was in all probability one of tumor of the frontal region, but its precise position, whether deeply seated or superficial, or connected with the corpus callosum, did not appear to me sufficiently clear. For this reason, though I frequently considered the advisability of operation, I did not think it well to interfere until definite localizing symptoms should declare themselves; but the patient was carried off by an intercurrent malady before this event occurred. The necropsy, however, proved that the tumor might have been reached and, in all probability, enucleated by trephining over the left frontal lobe anteriorly."

CAUSES OF FAILURE IN THE TREATMENT OF APPENDICITIS.[2]

BY ERNEST LAPLACE, M D.,
PROFESSOR OF SURGERY, PATHOLOGY, AND CLINICAL SURGERY IN THE MEDICO-CHIRURGICAL COLLEGE, PHILADELPHIA; SURGEON TO THE PHILADELPHIA HOSPITAL.

RECENT literature on appendicitis, teeming with reports of cases and the treatment favored by respective writers, still leaves one somewhat unsettled upon the following points:

1. What are the conditions that imperil a case of appendicitis if left untreated?

2. What are the conditions that imperil a case if treated, *a*, medically, *b*, surgically?

It is commonly accepted that the vermiform appendix is the structure primarily affected. It is the seat of an inflammation started by some foreign body, impacted feces, or local infection in the appendix. The resulting pathologic changes are edema and inflammation, soon communicating themselves to the neighboring loops of intestines, whereby these form adhesions; the inflammatory mass is thus, in the majority of cases, effectually isolated from the rest of the peritoneum. From this moment pain is distressing, and shock robs the patient of vital force. Should the case remain untreated, an abscess is soon the result of diapedesis of white blood-corpuscles overpowered and killed by the septic microörganisms present. Shock increases, the abscess becomes larger than the flimsy walls formed by the adhesions can support, and rupture, with general peritonitis, terminates the case. Sometimes a general infection of the peritoneum takes place from the organisms or their products percolating through the distended bloodvessels into the neighboring structures.

It takes but forty-eight hours to bring on such a condition as would betray clinically the existence of a boggy tumor, sometimes consisting only of highly congested tissues, sometimes the process having gone on to suppuration or gangrene.

It is not my purpose to describe the clinical aspect of the disease, but simply, having a clear pathologic conception of each case, to study how to meet the indications, and avoid the causes of failure.

The first cause of failure is tardiness in undertaking the treatment. The process of inflammation is often allowed to progress instead of being checked at once by medicinal measures. If asked to express in one word the treatment of this affection, I should say, *drainage*. In the first stage there should be intestinal drainage, by the free administration of saline cathartics. This removes the offending material, diminishes the congestion, and helps the bowel to recover its normal condition; but, failing to give immediate relief, the surgeon's interference is demanded. I consider it wrong to the patient to submit him immediately to an operative procedure, without having had the benefit of this medicinal treatment, but much worse to keep it up when no improvement attends it, idly hoping that the violent inflammatory process must disappear, until we are face to face with death.

If in an ordinary abscess we bear in mind that, in the vast majority of cases, it is impossible for pus to disappear without being evacuated (after which immediate improvement follows), we shall see how dangerous is delay in a case of suppurating appendicitis, with a foul fecal condition surrounding it. Delay, therefore, furnishes cases that vary in gravity and in pathologic development; and is therefore the element that determines the prognosis and proportion of failures. The medical practitioner who finds that after mild cathartics the patient is no better, even though the general condition is not much aggravated,

[1] Loc. cit.

[2] Read before the Medical Society of the State of Pennsylvania.

should send for the surgeon—who finds a condition of mild inflammation about the ileo-cecal region, perhaps a few fibrinous adhesions easily separable; an appendix much swollen, but not perforated, no pus, no general infection. The appendix is ligated and removed, the bowels carefully cleansed with aseptic warm water, and the patient makes an early and rapid recovery. I refrain from saying how few would be the failures if the surgeon were always called in time to meet the mild condition described, and treat it accordingly. Unfortunately, such is not often the case; through someone's fault surgical help is sent for on the sixth, tenth, and twelfth day of the disease. According to the violence of the inflammation on the eighth day, we may expect to find any condition varying from that described to one of gangrene and putrefaction of the gut, an abscess, with perforation of the appendix, sometimes having, from the accumulation of foul gas, pus, etc., within it, ruptured its flimsy walls of adhesions, and infected the peritoneal cavity. By this time shock exists to a marked degree, and the case is more grave.

Unless the patient be actually *in extremis*, the surgeon must operate. I shall not attempt any description of the rules to be adopted to guide us in the various steps of so complex and atypical an operation. One who has had to deal with these cases knows how, at different times, all the intricate resources of advanced intestinal surgery find their application here; how well equipped with aseptic operative materials one should be; how calm must be the judgment to dictate whether the gut is to be saved or resected; whether an artificial anus is to be formed or an intestinal anastomosis is to be practised; whether the abdominal cavity is to be immediately closed or not. We realize that each minute in the duration of the operation adds to the already excessive shock, and that promptness, decision, accuracy, *hastening slowly*, will diminish the ultimate chances of failure in the case. One word, however, I must emphasize—*drainage* of the abdominal cavity, in order to insure the proper condition of asepsis. For this purpose a growing experience gives me more and more confidence in the twisted wicks of iodoform gauze. The cavity of the abscess and all of the diseased tissues should be gently compressed or supported by a single large piece of gauze, the extremity of which will protrude from the abdominal cavity and drain the parts much more effectually than any other method of which we know. At the same time it disinfects the secretions to a large extent by the decomposition of the iodoform liberating nascent iodine. On the part of the surgeon, therefore, we think that incomplete or ill-adapted drainage is the foremost cause of failure—pus and foul discharges either remaining *in situ* and gradually infecting the general economy, or being distributed about the peritoneal cavity and inciting a fatal peritonitis.

Should the operation have progressed satisfactorily, causes of failure may also be found in the ill conducted after-treatment. The diseased parts of the ileo-cecal region still contain engorged bloodvessels laden with septic microörganisms; these may be near the inner or mucous surface of the intestine, as well as nearer the outer or serous coat, and it behooves us to get rid of them at the earliest moment. We have already provided for their destruction, should they trespass the serous coat, by the iodoform-gauze packing; we must now do better if possible—cause such a flow of serum toward the interior of the bowel, as will induce the congestion to subside, and with this drain away the septic influences. This is best performed by resorting once more to saline purgatives, which will now be found to materially hasten recovery. Thus, we see that the opening and the closing step in the treatment of this dread condition is alike—flushing and drainage of the intestine.

Corroborative of the views here expressed are eleven cases that I have treated in hospital and private practice during the last four years. Of these, seven occurred in males, and four in females. Two resulted fatally; both were in males. The first, a man of forty-five years, a chronic alcoholic patient, had returned for the third time to the medical wards of the Philadelphia Hospital, suffering with symptoms that pointed more to typhoid fever than to any other affection; on the eighth day, the pain, which was generalized about the abdomen, became limited to the right iliac region, and the temperature went to 103°. The case then came under my care, and the operation revealed a large tumor, consisting of highly inflamed intestine bound together by fibrinous exudate. There was disseminated peritonitis. Three small abscesses were evacuated. The parts were carefully cleansed and the cavity was packed and drained with iodoform-gauze. The intestines were apparently not so diseased as to be unable to recover their healthy condition, but in this we were deceived. Although the patient improved steadily, on the tenth day after the operation fecal, discharges from the bottom of the wound constituted sufficient evidence that perforation had taken place. A low inflammatory reaction soon set in, the patient refused all nourishment, and with uncontrollable nausea, he gradually wasted and died on the twentieth day after the operation.

My second fatal case was that of a strong and vigorous man, twenty-six years old. He had had one previous attack. Living in the country, he was ill four days before receiving medical attention, and then was treated with blisters and enemata. A temperature of 105° and abdominal tympanites suggested that surgical help might be required. It was on the

eleventh day of the disease that I saw the case, and, in face of this discouraging condition, I decided to give the patient his chances. There was generalized peritonitis in addition to the abscess in the right iliac region. The appendix had been perforated, and was in a sloughing condition. This patient died twelve hours after the operation. In both of these cases I believe that the termination would have been otherwise had the operation been performed three days earlier.

The nine successful cases were operated on from the third to the sixth day of the affection. In all, the appendix was found much inflamed, and was consequently resected. In no case was it found necessary to resect the gut. Thorough cleansing of the peritoneal cavity with two gallons of sterilized water at a temperature of 105° constituted the rest of the operation; a large iodoform-gauze drain was inserted at the most dependent portion of the closed wound. Two cases were well in one week, the temperature at no time rising above 100° after the operation. In five cases the temperature rose to 102°, recovery being complete in about two weeks.

Two cases pursued a more sluggish course, inasmuch as the patients were more than sixty years of age, and nutrition was at a low ebb. The one was an alcoholic patient, and the second a woman with a distinct specific history. Both, however, ultimately recovered.

The main causes to which, in our judgment, failure should be ascribed are:

1. Tardiness in undertaking the medical treatment.

2. Tardiness in undertaking the surgical treatment, should no improvement follow the first thirty-six hours' medical treatment.

3. Granted a surgical treatment: shock and improper drainage—especially when the case has been of more than three days' standing.

4. Granted a surgical treatment and the case be seen within the first seventy-six hours' duration, the chances of failure are at a minimum; because the mere opening of the abdominal cavity, in these days of surgery, is attended with but very little risk.

HYPERTROPHY OF THE LINGUAL TONSIL, WITH REPORT OF FIFTEEN CASES.

By W. SCHEPPEGRELL, A.M., M.D.,
of New Orleans.

The comparative paucity of literature on the subject of the hypertrophied lingual tonsil would lead us to suppose that this is either a very rare affection or that there is much difficulty in its diagnosis.

That the former is not the case is proved by the fact that of one hundred cases applying for treatment in the Ear, Nose, and Throat Department of the Eye, Ear, Nose, and Throat Hospital, of this city, eight cases were diagnosticated as having, among other conditions, hypertrophy of the lingual tonsil.

The diagnosis of this affection is not difficult. Frequently the symptoms alone point out the base of the tongue as the seat of the disorder. A physical examination is made by drawing out the tongue with a napkin, and pressing the velum palati gently but firmly back by means of a laryngeal mirror. Under a good illumination, if there is an hypertrophy of the lingual tonsil, there will be seen, instead of the normally smooth base of the tongue, a number of broad granulations, varying in size and number. Sometimes the granulations are so situated, and so large, that they interfere with the free movements of the epiglottis, and in these cases we have the most characteristic symptoms.

Among the symptoms complained of by the patients are: a feeling of a foreign body in the throat, which the patient in vain tries to swallow; a feeling of something "sticking" in the throat, a sense of suffocation, difficulty in swallowing, a feeling as if a ball were rising in the throat (globus hystericus), palpitation, and other reflex nervous symptoms. On one occasion, a patient insisted that she had swallowed a feather a year ago, and that it still "tickled" her throat. The cauterization of a prominent hypertrophy of the lingual tonsil caused a complete disappearance of this sensation.

In some cases, especially if the hypertrophy is not marked, no special symptoms are complained of.

Of fifteen consecutive cases of hypertrophy of the lingual tonsil, five were in males and ten in females. Fourteen cases were in whites, one in a mulatto, and none in blacks. The ages ranged from nineteen years, the youngest, to fifty-one years, the oldest. Between nineteen and thirty, there were ten cases; between thirty and forty, one case; and from forty to fifty-one, four cases. Of the fifteen cases, all of the symptoms were attributable to the hypertrophied lingual tonsil alone in seven cases. Of the remaining cases, the hypertrophy of the lingual tonsil was associated with hypertrophy of the faucial tonsil in one case; with hypertrophy of the uvula in two cases; with hypertrophy of the pharyngeal tonsil in two cases; with pharyngitis in one case; with hypertrophic rhinitis in two cases; with atrophic rhinitis in one case; and with otitis media in three cases.

The treatment consists in thorough cauterization of the hypertrophy with the electro-cautery. The part should first be cocainized; cocainization, however, is not as effective here as in the nasal passages; nor is it effected as readily, as the solution of cocaine is diluted by the rapidly accumulating saliva. With care and patience, however, the parts may be so

well anesthetized that the operation will be but little painful.

By means of a napkin the tongue is then drawn out by the patient, and with the laryngeal mirror in the left hand, the velum palati is pressed back until the granulations at the base of the tongue, under full illumination from the head-mirror, are exposed to view. The electro-cautery, previously adjusted to a dull red, is then applied and the granulations thoroughly cauterized, care being taken to avoid the epiglottis. The patient is then told to use a bland and unirritating diet for a few days.

For a week the cauterized part appears white, and is painful and irritated. The pseudo-membranous slough begins to exfoliate on about the eighth day; in two weeks the part appears clean, and, if the cauterization has been thoroughly done, free of granulations. When this is not the case, as, for instance, if the granulations are unusually large, the cauterization should be repeated.

If the hypertrophies are very large, they may also be removed by the cold snare, but, in most cases, the electro-cautery is the most effective method. The chemical cauteries are by no means as convenient or as efficacious as the electro-cautery.

The treatment of these cases is usually successful, and, if the hypertrophy of the lingual tonsil is the sole cause of the symptoms, very gratifying.

CASE I.—Louis C., white, twenty-four years. Hypertrophy of the faucial and lingual tonsils, and an hypertrophied uvula. The hypertrophy of the faucial tonsils was removed with Mackenzie's tonsillotome; of the lingual tonsil, with the electro-cautery; and of the uvula, with the cold snare. Discharged cured.

CASE II.—Mrs. Mary C., white, forty-two years. Complains of "trouble" in swallowing and in taking breath. Symptoms cured by the application of the electro-cautery to an hypertrophied lingual tonsil.

CASE III.—Mrs. Sarah B., white, twenty-six years. Hypertrophy of the lingual tonsil. Complains of a ball rising in the throat (globus hystericus), and "nervous attacks" about every second day, when she suffers from general irritability and trembling of the limbs. The hypertrophied lingual tonsil was cauterized with the electro-cautery. A week later the patient reported that she had had no repetition of the nervous attacks, or of the sensation in the throat. Two months later the patient had had no return of the symptoms.

CASE IV.—Miss R., white, fifty-one years of age. There was hypertrophy of the lingual tonsil, associated with a dropsical effusion in the right leg, due to anemia. The hypertrophy was cauterized, and the patient ordered a nutritive diet, fresh air, iron, and tonics.

CASE V.—Miss Emma C., white, nineteen years old, had hypertrophy of the lingual, pharyngeal, and faucial tonsils. She complained of a fulness in the throat and a sensation of choking. The hypertrophy of the right faucial tonsil was removed with the tonsillotome; six days later the left tonsil; eleven days later the pharyngeal tonsil was curetted, and four days later the electro-cautery was applied to the hypertrophied lingual tonsil. The patient was discharged two weeks later, stating that she felt "splendid."

CASE VI.—Mrs. L. B., white, thirty years old, had hypertrophy of the lingual tonsil, associated with nasal stenosis, due to falling of the cartilages of the alæ. The patient complained of a sensation of choking when swallowing, of "short breath," and extreme nervousness. The hypertrophy in this case was very marked. The patient was told to return the following day for cauterization, but has not appeared since.

CASE VII.—Christian K., white, forty-eight years of age, presented hypertrophy of the lingual tonsil and elongated uvula. The patient complained of a feeling as if there were a "lump in the throat," and a stinging sensation. These symptoms have been present for eight months, but have become aggravated during the past month. The elongated part of the uvula was removed by means of the cold snare, and the hypertrophied lingual tonsil cauterized. As the patient left the city a few days later, the result of the operation is not known.

CASE VIII.—Philip D., white, thirty-eight years of age, had hypertrophied lingual tonsil, rhinopharyngitis, and chronic inflammation of the middle ear. The hypertrophied lingual tonsil was cauterized.

CASE IX.—Frank D., white, twenty-four years. There was hypertrophy of the lingual tonsil, post-nasal adenoids, and hypertrophic rhinitis. The adenoids were removed with the curette, and the inferior turbinated bodies and lingual tonsil cauterized. Discharged cured.

CASE X.—Miss Emma C., white, fifty years old, had hypertrophy of the lingual tonsil. She complained of a "fulness" in the throat, frontal headache, and palpitation. Operation was refused.

CASE XI.—Thomas R., white, twenty-three years old, had hypertrophy of the lingual and pharyngeal tonsils. He complained of an accumulation of "phlegm" in the pharynx, and a dull pain on both sides of the throat when swallowing. The curette was used on the pharyngeal tonsil, and the electro-cautery on the lingual tonsil. He was discharged cured.

CASE XII.—Mrs. Mary P., white, forty-four years of age, was found to have hypertrophy of the lingual tonsil, and impaction of cerumen in auditory canals. The patient complained of an irritable cough, and a feeling as if there were "two sticks in the throat." The granulations at the base of the tongue were so large that they prevented the free play of the epiglottis, thus probably causing the cough.

The impactions were softened with a solution of sodium bicarbonate, and washed out with warm water. The hypertrophied lingual tonsil was cauterized. She was discharged cured, all symptoms having disappeared.

Case XIII.—Noemie L., white, twenty-six years old, had hypertrophy of the lingual and pharyngeal tonsils, and chronic inflammation of the middle ear. The patient easily "catches cold," and has a constant inclination to swallow. Hypertrophy of the pharyngeal tonsil was removed by means of a curette, and the lingual tonsil was cauterized. Two months later the patient stated that she had had no "cold" since the operation, and no longer had the inclination to swallow continually.

Case XIV.—Alice W., a mulatto, twenty-six years of age, had hypertrophy of the lingual tonsil, hypertrophic rhinitis, and otitis media chronica. The patient complained of a "stinging" sensation in the throat, a pain in the chest, and a feeling on drinking liquid as if "it would not go down." The inferior turbinated bodies and lingual tonsil were cauterized, with complete disappearance of the throat symptoms.

Case XV.—Lizzie P., white, thirty years, was found to have hypertrophied lingual tonsil. The patient complained of a feeling as if the "throat were closed," and as if "the glands were swollen." She claims that the affection was due to an attack of the grippe. The lingual tonsil was cauterized, and she was discharged cured.

271 Carondelet St.

TRICHOREXIS NODOSA—A PRELIMINARY NOTE.

By MAZŸCK P. RAVENEL, M.D.,
of Charleston, S. C.

The generally accepted etiology of this rare and interesting disease of the hair-shaft has caused it to be described in most text-books as an atrophy of the hair, and some form of malnutrition is put down as the first cause.

I have recently made an observation that tends to overthrow this belief, and points almost conclusively to a parasitic origin. For five years past I have had the opportunity of watching the clinical features of the disease in myself, and I have therefore naturally been more than usually interested in it, and during that time all of the commonly-advised remedies have been tried without benefit or effect.

About a month ago I discovered that many of the hairs in my shaving-brush—probably one-fourth of them—were affected with the disease. So soon as possible the brush was submitted to my teacher, Dr. Henry W. Stelwagon, the well-known authority on diseases of the skin, who, after careful examination, has pronounced the condition of the hairs in my brush identical with that seen in my beard and moustache.

Dr. John Guitéras, Professor of Pathology at the University of Pennsylvania, kindly interested himself in the matter, and sent at once to Cuba for the shaving-brush and tooth-brush of a gentleman who, for some years, has been troubled with trichorexis nodosa. In both brushes the disease is typically illustrated. At the suggestion of Dr. Guitéras, my own tooth-brush has been examined by Dr. Stelwagon and myself, and in it also the same condition is well marked.

It is of interest to note that the shaving-brushes are made of entirely different hair, one being what is called in the shops "Badger" hair, the other some coarser hair, resembling hog-bristles, while the tooth-brushes represent still another kind of hair, all probably infected from the users, as will be shown more fully in a subsequent paper.

Dr. Guitéras has begun an investigation of the subject, which will be reported in time, and which I trust will result in the clearing up of our knowledge of the etiology of the disease.

In the meantime, may I ask that any physicians having the disease themselves, or in the case of patients under their care, will examine the shaving and tooth-brushes, and report the results to me, of which suitable acknowledgment will be made. Should the brushes be found affected, I will be glad to have some of the hairs sent to me, with a brief history of the case.

Please address, in care of Dr. H. W. Stelwagon, 223 South Seventeenth Street, Philadelphia.

ORIGINAL LECTURES.

TUBERCULOUS DISEASE OF THE TESTICLE—TUBERCULOSIS OF THE CERVICAL GLANDS—RODENT ULCER—SCIRRHUS OF THE BREAST—ACUTE SUPPURATIVE DISEASE OF THE JOINTS—FIBROMA OF THE BREAST.

By J. B. HAMILTON, M.D., LL.D.,
Professor of the Principles of Surgery and Clinical Surgery, Rush Medical College; Professor of Surgery, Chicago Polyclinic, etc.

TUBERCULOUS DISEASE OF THE TESTICLE.

Gentlemen: This patient comes before us with disease of both testicles, which has existed for some time. He has had pain, and a fluctuating swelling was opened by his physician and pus was found. On examination, I find that there is a swelling of the epididymis, which feels something like varicose veins. It is, however, more solid and more consistent than varicose veins would be, but the disease evidently involves the whole epididymis. He has also swellings in the groin on either side, and his general appearance is that of a scrofulous, or, as we now say, a tuberculous person. The history of this disease is one of swelling commencing in the epididymis. That is characteristic of tuberculosis. We might have other affections of the epididymis, but tubercle is *par excellence* the disease we look for in a patient having such constitutional characteristics: he is thin, pale, hollow-chested, and anemic.

As to the cause of tuberculosis of the epididymis, we are as much in the dark to-day as before the discovery of the tubercle-bacillus. Some transcendentalists have

asserted that during coitus the bacillus found its way through the meatus urinarius into the seminal vesicles, thence to the convoluted tubules that constitute the epididymis; but that is not proved, and consequently it must be stated as a theory rather than as a fact. Tuberculosis of the epididymis appears first in the head of the epididymis, not in the tail as it is termed, or that portion which extends from the head to the vas deferens; this is affected later. When you feel the head of the epididymis you will realize that the tuberculous process commences at that point. It is not, as a rule, very painful in the beginning, but it is sometimes very much so. There are three characteristic symptoms, one of which is a discharge from the penis which somewhat resembles ordinary gonorrhea or blennorrhagia, but is not yellow, like the discharge of gonorrhea. The margins of the meatus urinarius are not swollen as they are in gonorrhea. There is no pain whatever in the urethra. I beg of you to bear in mind this diagnostic point, that there is no pain and no tenderness in the urethra. When we have a chronic orchitis from gonorrhea or venereal infection we do have pain in the meatus urinarius. Occasionally there is difficulty in micturition. When the tubercle is broken up, pus is formed, and we then have a pus-cavity, and most likely elevation of temperature in the part. Another symptom is hematuria; and the third is swelling of the epididymis.

The surgical treatment is various. It has been proposed by many surgeons to open the abscess-cavity and scrape its walls, as well as those of the fistulous tract leading from it, but the disease sooner or later returns, and then we have gained but little by that operation. Hence most surgeons, especially in America, believe in entire extirpation of the testicle, and in that way measurably relieving the system from the danger of disseminated tuberculosis. The disease in this case has progressed beyond the point at which we might hope to prevent general tuberculosis, because we have swelling of the glands beneath Poupart's ligament, and there is no doubt but that the disease will reappear in some other situation. We may, however, relieve some of the patient's symptoms. We can relieve the pain in the epididymis, and we can postpone and perhaps limit general infection to a considerable extent, by removing the diseased organ.

The operation is simple. It consists in a single incision, directly down to the testicle, separating the vas deferens and the vessels of the cord; we then tie these, and remove the organ.

The left testicle in this case is somewhat involved in the disease. As I grasp the organ, I find the disease is mainly confined to the epididymis, so that I presume if it were practicable to remove the epididymis and leave the testicle, we could do so. But bear in mind that would involve the removal of the vas deferens. It would then be an organ without a duct, and therefore useless. Moreover, in the stage of the disease to which these testicles have progressed, they are useless so far as procreation is concerned. The discharge which comes from the penis in a case of tuberculosis of the testicle rarely contains seminal fluid. Sometimes spermatozoa may be detected in it, but with extreme rarity.

As the epididymis is here uncovered we see a mass of dilated veins; we see a nodular margin clearly tuberculous, and the testicle itself is cystic. I will now grasp the organ, separate it carefully from the tunica, and passing the forceps through the thinnest portion of the fascia, seize the ligature and draw it through.

Of course, gentlemen, in such cases there are two *infallible* means of diagnosis of which I have not yet spoken. One is inoculation, whereby some of the fluid from one of these tuberculous nodules would be injected into one of the lower animals and reproduce the disease, white mice and guinea-pigs being used preferably for this purpose. The other method would be the staining and finding of the tubercle-bacillus under the microscope.

The cord having been tied and the vessels secured, we now simply stitch the external wound. As the operation has been done under aseptic precautions, the patient carefully prepared before the operation, and everything which has come in contact with the wound has been rendered surgically clean, we need have no fear that primary union will not result.

There is one point in the after-treatment that deserves attention. You will observe that I insert no drainage-tube in this case, because it is unnecessary, as we have prevented the wound from coming in contact with any pus-organisms, and it is now necessary to support it with a proper bandage. Such is the laxity of the scrotal tissue that the scrotum itself will be filled up with the blood that comes from the parenchymatous oozing unless firm support is made by bandaging. See that the parts are placed in exact apposition, and we may expect primary union in this case.

TUBERCULOSIS OF THE CERVICAL GLANDS.

Here is a marked case of tuberculosis of the cervical glands. It has progressed to suppuration. The central gland is suppurating. I feel that the entire chain of glands of this triangle of the neck is involved in the disease. On the other side of the neck the glands are not yet involved. As I press my fingers above the clavicle on the side of the sterno-cleido-mastoid muscle, I find that this chain of glands extends all the way to the clavicle, evidently involving the whole lymphatic system of the neck. If the woman desires to escape disseminated tuberculosis she will have to have the glands removed early. (The patient declined to be operated on at this time.)

RODENT ULCER.

The patient just placed on the operating-table has rodent ulcer, as it is termed, involving the lower eyelid, a portion of the upper eyelid, and the eyebrow of the left side. Rodent ulcer, it is now known, is simply a variety of epithelioma. It is true carcinoma, of epithelial growth. It presents a characteristic appearance, a ragged, slow-growing ulcer, usually appearing on the side of the nose, the canthus of the eye, or the eyelid itself. The hemorrhage is a little less in these cases than it is in other varieties of epithelioma. There is more pus formed in them; but they are quite as intractable, quite as likely to destroy life if allowed to go on, and require the same treatment as other varieties of epithelioma. It is a somewhat singular clinical fact that epithelioma or rodent ulcer of the upper eyelid is more speedily fatal than if the lower lid is involved. The explanation usually given is that the globe is sooner involved when the upper eyelid is affected by the disease, than when it is

confined to the lower lid. In the case before us you will notice that there has been entire destruction of the lower lid, commencing at the conjunctival rim, and the conjunctiva of the globe is also affected by the disease.

In the operation for the relief of this disease we must not regard the scar that is to be left as of any great significance, the thorough extirpation of the disease being of the first importance. Any portion of this neoplasm that remains in the tissue is certain to be reproduced; the first thing to do, therefore, is to determine upon thorough extirpation, and afterward we may consider the correction of any deformity that has been made as a result of the operation. The operation this afternoon will, therefore, consist in the thorough removal of the diseased structure, and then a plastic operation for the restoration of the lower eyelid, and for the filling up of the gap we shall have made by the extirpation of the disease. Please bear in mind that in the planning of the incision, I shall not particularly regard what kind of a wound I shall leave on the face, but I shall plan to extirpate every portion of the diseased tissue. Operations about the face are usually extremely bloody, owing to the extreme vascularity of the tissues, but the hemorrhage is easily controlled.

I have now separated the diseased mass and shall proceed to extirpate it. I have removed the greater portion of the diseased structure, but I have still to remove the portion that has encroached upon the conjunctiva. The globe of the eye is not involved in the disease, which is progressing very rapidly. It has reached the conjunctiva next to the globe. The next step in its extension would be the invasion of the globe of the eye. That, of course, should be prevented, if it is possible to do so. To that end we must remove all of the structures that seem unsound. It is extremely desirable to preserve the puncta lachrymalia if it can be done. If we are obliged to remove them we are nearly certain to have dripping of the tears, which may be prevented by dilatation of the duct, and occasionally by the formation of new lachrymal ducts, an operation not remarkably easy of execution.

We are now ready to see the condition of this wound. The diseased tissue has been removed, the hemorrhage has been suppressed, and we are ready to see exactly what is required to restore this somewhat irregular breach. You will observe here a triangular wound, having its base toward the globe of the eye and its apex opposite the greater prominence of the malar bone. To restore this cavity it will be necessary that the upper segment, or posterior edge of the triangle, shall form the upper edge of the lower lid; so, then, we shall continue this incision directly down toward the angle of the jaw. We shall leave a vinculum of tissue here; I simply dissect up the flap, carrying the skin and superficial fascia with the flap. I shall now transplant this flap by twisting, so that when it is put in place it will form the lower eyelid. We also require some additional tissue for the upper eyelid, but it will be quite as well to bring this flap in position and stitch it where it belongs. There would be no particular difficulty in closing this wound were it not for the removal of one-half of the upper eyelid. That complicates the plastic operation very materially. I have now, as you see, reconstructed both the upper and lower eyelids. It remains, in order to complete the operation, to sew the conjunctiva just below the globe of the eye. The conjunctiva of the globe of the eye should be sewed to this flap, which is the new lower lid, and for that purpose the upper lid will be drawn upward. I now seize with forceps the conjunctiva, pass a few sutures through it, and thus restore the connection of the lower lid. We shall now ligate the vessels in the space from which I have taken the lower flap, if they require it. We have brought the flaps together as far as it is prudent, or as far as they are likely to remain so; we shall cover the remaining wound with skin-grafts taken from the arm by Thiersch's method.

For many years skin-grafts have been used to repair old ulcers when the epidermis is not sufficient to do so, but it is only within the last few years that these grafts have been used to place on fresh surfaces. Whatever may be said about the origin of skin-grafting, I think there remains no question in the minds of fair-minded surgeons that the late Frank Hamilton, of New York, was the first to suggest it. Improvements have taken place, but the principle of the operation remains as he announced it.

We shall now have the patient's head again carefully washed, so that no infectious material can gain access to the wound. We shall wash the new lid carefully and apply a little pledget of lint between the lids, in order to prevent their adhesion to each other. We now put protective gauze over the skin-grafts that have been inserted by the Thiersch method. We shall now separate the lids for a moment, and you can see that the eye is still uninjured; there has been enough margin of the conjunctiva to sew fast to the lower lid, and we may hope for a very good result.

SCIRRHUS OF THE BREAST.

You observe here a breast which is considerably swollen. It is extremely hard to the touch; we see marked retraction of the nipple; it is very painful, and we have also invasion of the axillary glands on the right side. We notice the pale lips of the patient. She is beginning to be affected constitutionally from this affection, which has grown very rapidly. Of course, there can be but one diagnosis. The patient says that she first noticed the trouble about six months ago. She had influenza last winter, and attributes the origin of this affection to that disease, but she would have had this disease if she had not had influenza. You understand that the condition of this patient is practically hopeless, unless immediate operation is resorted to. It is a case of scirrhus of the breast in an advanced stage. We have swelling of the axillary glands; we have signs of constitutional infection in the persistent anemia that is present, the loss of appetite, pain, and rapid growth of the tumor, all of which point to the extreme malignancy of the growth. The sooner it is removed the better it will be for her. In three or four weeks more it will have progressed until it is attached to the periosteum of the ribs. Not only the glands in the axilla, but the cervical glands will have become infected. The anemia will be such that the reparative process after operation would be materially interfered with, if not entirely stopped, and her chances of recovery decrease in arithmetical progression in proportion to the length of time that she defers the operation. An operation performed to-day

would be worth much more to her than one done three weeks from now.

ACUTE SUPPURATIVE DISEASE OF THE JOINTS.

You will remember that a few weeks ago I presented some cases of acute suppuration of the joint, one in a child in which the elbow was infected, and the other in a little girl in which the wrist was the joint infected. I stated on that occasion that we could arrest the further progress of the disease by thorough drainage, placing strips of iodoform-gauze between the ulcerated ends, or by injection of iodoform-emulsion, and leave the patient with a reasonably good joint. The infant that had the drainage-tube put through the elbow-joint has recovered. When the child was brought to the hospital a few days ago I found that the wound had entirely healed with a perfectly useful elbow. This young lady with suppuration of the wrist-joint has come back for the first time since the operation. The joint, you see, is in an acute stage of suppuration at this time. There is no danger of constitutional infection, because while we have free drainage, we cannot possibly have the patient in particular danger, except from severe pain. These drainage-tubes pass directly through the joint; they are capable of removing every particle of pus that is formed there. The joint is being irrigated with iodine solution. I have seen cases progress admirably in this way without further surgical interference. Unless the bone is too greatly diseased, I like to try drainage in these cases, because if we can preserve the bone in its entirety, we preserve the usefulness of the joint; and when in obstinate cases there is failure, we may still perform arthrectomy or resection, and the delay caused by the milder means will not prejudice the operation.

FIBROMA OF THE BREAST.

In sharp contrast with the case of tumor of the breast previously presented to you, we have here a tumor of an entirely different character—presenting, however, the same outward characteristics. If we examine this patient's breast we find it also to be extremely hard. We have retraction of the nipple; we have a history of antecedent mammary abscess. The hardness, which is due to the fibrous structure, depends upon an increase in the normal connective tissue of the parts. There is no enlargement of the axillary glands in this case. The axilla is perfectly sound. It is true there is pain, but it is due to the enlarged growth and to the mastitis persistently present. You notice, on squeezing the breast, I press out a melanotic fluid. The color is in itself suspiciously suggestive of the melanotic form of sarcoma, in which, the tumor originally having been a fibroid, spindle cells developed, constituting sarcoma. I had such a case in which the breast was removed four times. In the beginning there was melanotic fluid. Section showed under the glass no abnormal elements in the tumor, and yet we began to see what is sometimes called malignant transformation take place in the tumor. There were a few spindle cells; after a while there was a second recurrence, with round cells in addition to spindle cells. We had then developed in the scar of the old operation a ragged sarcoma, which destroyed the patient's life because she refused to submit to a third operation, and went to somebody who applied caustics. She went through the usual round of unfortunate patients in such a condition.

Notwithstanding the pigmented discharge, I believe this case before us to be one of fibroma, on account of the history and on account of the absence or want of any sign of constitutional infection, as shown by lymphatic enlargement. I have advised the woman that it will be entirely safe to remove the gland, for the reason that should there be any doubt it is much better to remove such a gland as this than to allow it to go on and become carcinomatous later, in which case it would not be the fault of the patient, but rather of the surgeon. I also exclude tuberculosis from consideration, because in a case in which the disease had progressed to the stage of abscess, we would necessarily have the signs of constitutional tuberculosis.

In the removal of the mammary gland for carcinoma, it is now customary to remove a great deal of the skin, because the skin is often invaded by the disease, even when the involvement is not distinctly noticeable to the eye; but in the removal of a mammary gland for fibroma, such extensive removal of the skin is hardly necessary.

In this case I will make an elliptical incision, which will include the nipple, then remove the lower portion of the gland first, turn it upward, and the operation will be comparatively easily done. Sometimes I have found it necessary to tie the internal mammary artery, or one of its branches, but as a general thing the ligature of the internal mammary is not required. One other point in the removal of a mammary gland for carcinoma is to be noted: we require all the fat and fascia to be removed down to the fibers of the pectoral, and, in some cases, of the intercostal muscles. We also remove the axillary glands, whether involved or not. As this is a case of fibroma, and not carcinoma, I shall only remove the gland as it now exists. After removal, we feel at the bottom and sides of the wound for evidence of nodules or thickening of the tissue, and trim it with scissors, precisely as would be done in a case of carcinoma, except that we would go more deeply in the latter, and dissect out everything down to the muscular tissue.

PROLAPSE OF THE OVARIES.

A Clinical Lecture
Delivered at Cooper Medical College.

BY CLINTON CUSHING, M.D.,
PROFESSOR OF GYNECOLOGY IN COOPER MEDICAL COLLEGE, SAN FRANCISCO, CAL.

FOR the morning lesson, I present this case, with the following history: The patient is twenty-eight years of age, a native of Ireland, and was married three years ago. She has never been pregnant; her menstruation is regular, but she has pain in the ovarian region for one day before the flow comes on. This pain is somewhat relieved as the discharge progresses. She suffers much from backache, and this is aggravated during the menstrual period. She also suffers from a sensation of heat in the top of the head, pain under the left breast, and from indigestion—a movement of the bowels causing more or less pain and uneasiness in the region of the uterus. The sexual relations are painful. She also has leucorrhea. Before marriage her health was fairly good, but since her wedding-day the pelvic pain has been

gradually increased, and failure of strength and health has been marked. This woman was placed upon the examining table in the clinic-room below and an examination made. Before being placed upon the table, however, she was asked to remove her corsets and loosen all the skirts and bands about her waist, for no satisfactory examination can be made of the abdominal or pelvic cavity so long as there is constriction of the waist by skirts and corsets. This is a matter of more consequence than would at first appear. The change in the contour of the abdomen upon the removal of a pair of moderately tight corsets is remarkable. With the constriction the abdomen is prominent, rigid, and not easily depressed with the hand. Without the constriction the walls become flaccid and are easily depressed, to the advantage of the examiner who wishes to diagnosticate abdominal or pelvic disease.

With two fingers of the left hand in the vagina and with the right hand on the abdomen, we make a digital and bimanual examination. I would here call your attention to the fact that this bimanual examination is by far the most important of our means of diagnosticating pelvic disease in women. Students usually have the idea that the most important means of diagnosis consists of an examination with the vaginal speculum, but the speculum has not one-tenth the value of digital and bimanual examination. Through the speculum you learn only the appearance and condition of the mucous membrane of the vagina and cervix, and the character of discharges, but with the educated finger you learn by the sense of touch, the size, the position, and the amount of tenderness of the pelvic organs, and the existence or non-existence of pelvic cellulitis and peritonitis, or the presence of morbid growths in the pelvic cavity.

In examining this woman we find the uterus retroverted; the cervix points forward toward the bladder, and the body of the uterus lies backward upon the rectum. On either side of the body of the uterus, on a line with the cervix, I find small elastic masses of the size of large almonds, and very tender to the touch. These masses I believe to be the ovaries, prolapsed into Douglas's pouch. My reasons for believing that these are ovaries is, first, because of their size and tenderness, and secondly, the fact that by bimanual examination I am unable to find the ovaries in their usual place.

Now, what are the conditions that might simulate prolapse of the ovaries? There might be a localized effusion of lymph, but in that event there would be immobility of the part and a history of acute pain and fever. The Fallopian tube might become enlarged, inflamed, and prolapsed; and in this case the diagnosis would be attended with difficulty. The elongated shape of the tube, and especially a history of recurrent attacks of pelvic peritonitis, would give rise to a strong suspicion of salpingitis or pyosalpinx. Small fecal masses in the rectum might simulate a prolapsed ovary, but the differential diagnosis is easily made, because the fecal masses would not be sensitive to the touch, and an examination by the rectum would clear up all doubt.

I would here suggest to you that in any case of doubt and uncertainty the patient be told to return on the following day after having had the rectum thoroughly washed out with large injections of warm water; you can then make a much more thorough examination of the pelvic organs per rectum than you can by the vagina. With the finger in the rectum you can reach from one to two inches higher up into the pelvis than you can by the vagina, and any mass in Douglas's pouch is easily manipulated through the thin wall of the rectum.

The question now arises, What has been the cause of this dislocation of the uterus and ovaries? But this is a question that we shall probably never be able to answer correctly. There are so many causes, some acting slowly, and some suddenly, and of which the patient herself takes no note at the time, that it is impossible to say in most cases what the cause was—lifting heavy weights, the wearing of tight corsets, chronic congestion resulting in enlargement of the ovaries, falls and injuries, congenital faults, and the relaxed condition of the broad ligaments which follow the delivery of the child. Any one of these causes might act in a given case to produce the malady from which this woman is suffering. You will notice that this woman says that her sexual relations have been painful from the beginning, and this you would expect, for the ovaries, being low down in Douglas's pouch, would be impinged upon by the male organ during the sexual act. Furthermore, the passage of hardened fecal matter, by pressure upon the ovary, would also cause pain and discomfort. That the congestion which occurs at the time of menstruation should be accentuated in the prolapsed ovary, and increase the suffering, would seem only natural, since it is certainly usual that standing or walking should also increase the suffering.

The pathology here varies; in a considerable proportion of cases the ovary becomes considerably enlarged, or, as a consequence of pelvic peritonitis, it may become firmly adherent. I should, perhaps, have mentioned to you that a chronic enlargement of the ovary should be considered as one of the causes of its dislocation. It is true that an ovary may remain prolapsed for years without becoming enlarged or causing many disagreeable symptoms, especially if the woman remain unmarried; but, as a rule, no woman can long suffer from dislocation into Douglas's pouch without having local pain and more or less serious disturbance of the general nervous system and of the general nutrition. She becomes nervous and irritable, the stomach and liver become disordered, the complexion becomes bad, and her usefulness in every way is seriously impaired. In this condition sterility is the rule.

The prognosis here depends very much upon circumstance. If the uterus and ovaries are movable, or, in other words, are not fixed by the results of pelvic peritonitis, the prognosis is fairly good, and we have many examples in this clinic of cases of this kind that to all intents and purposes have been cured. On the other hand, while, by careful management, the woman's life can be rendered tolerable by local and general treatment, there still remains a certain proportion of cases in which, by reason of the extensive amount of disease, no local treatment seems to be of any avail and the general treatment proves useless. In this event, the facts of the case should be fairly set before the patient, and the question of the removal of the diseased organs should be discussed. The surgeon dealing with a diseased and useless hand, the oculist with a blind, useless, and painful eyeball, does not hesitate to remove the offending

member. So with the gynecologist. If it can be shown that an enlarged, prolapsed, and adherent ovary is not amenable to conservative and careful local treatment, and the condition of this organ renders the woman's life a burden to her, then she should certainly have the alternative presented to her of parting with the diseased organ.

Owing to the amount of tenderness in the region of the ovaries and uterus, it will be necessary in this case to proceed very carefully. We placed this woman upon her elbows and knees upon the operating table, and the assistant introduced a Sims speculum and lifted up the posterior vaginal wall. The intestines gravitated upward and forward, and as the air entered the vagina the tendency is for the uterus and ovaries to fall forward toward their normal position. I now take pledgets of cotton, the size of a hen's egg, saturated with glycerin, to which are attached some strong threads, and crowd them firmly into the upper part of the vagina behind the cervix, and afterward fill the vagina below with similar pledgets of dry cotton. The speculum is now removed and the woman allowed to get upon her feet. This tampon keeps the uterus and ovaries higher up in the pelvis, and the glycerin, on account of its affinity for water, abstracts from the tissues a large amount of serum and thereby relieves the congestion.

Should this dressing not cause pain, it will be allowed to remain for forty-eight hours, but the woman is strictly enjoined to keep off her feet as much as possible, and to remove the tampon at any time if it causes any considerable amount of pain. This dressing will be repeated twice a week during the inter-menstrual period. If the case does well, the tenderness will be markedly improved within the next two or three weeks, and if the uterus does not return to the normal condition, an effort will be made, while the woman is in the knee-elbow position, to place the uterus in the position of anteversion by means of the uterine sound, thus drawing the ovaries upward and forward out of Douglas's pouch, and the cotton dressing reapplied as before.

If this treatment is well borne, the next step will be the fitting of a Hodge retroversion pessary to keep the uterus in its normal position. If this is successfully accomplished, the ovaries will probably remain very nearly where they belong. Here there is one point that should never be forgotten. If the presence of the vaginal pessary causes pain, it can do no good, but always harm. The true test of any vaginal pessary is that the woman should not know by sensation that any instrument is in the vagina, and that the presence of the instrument gives her a sense of relief. So long as she wears this pessary it will be necessary for her to use a large vaginal injection of warm water at least once in twenty-four hours, with explicit instructions that she remove the instrument at once if it cause pain that is not relieved by a few hours of rest.

The woman asks the question if this plan of procedure will cure her. In answer to this, I would say that if we are ordinarily successful we shall relieve her of a large part of her pain and discomfort. She will probably be compelled to wear a vaginal pessary for several years, but how long it will be necessary for her to wear the instrument in order that these organs shall retain their natural position without it, it is impossible to say.

The argument is made that this is at best but an artificial appliance, and is therefore objectionable, but many persons use artificial appliances about some part of their body because relief and comfort are thus gained. One wears a wooden leg, another a set of artificial teeth, another spectacles, another an ear-trumpet, and no objection is made to these appliances on the ground that they are not curative agents. Therefore, if a woman is relieved of pain and distress by the wearing of a vaginal pessary which does not cause pain, there can be no serious objections to it. It is true that many men make ignominious failures in their attempt to fit vaginal pessaries. It is also true that many men make equally bad failures in their attempts to manage any kind of a mechanical device.

To fit a vaginal pessary properly is not a simple matter. No two women are alike in this part of their anatomy, any more than their voices and their faces are alike, and the endeavor to use in all cases some particular form or pattern of pessary is sure to be followed by disaster. In every case the pessary must be moulded and adjusted to fit the individual requirements. In truth, it is about as difficult to fit a pessary as it would be for the shoemaker to be blindfolded, and then by the sense of touch to convey to his mind the size and form of the foot of his customer, and then go into an adjoining room, remove the bandage from his eyes, and select from his stock a properly fitting shoe. In the case of the pelvic organs there is the added difficulty that their relations are constantly changing and are constantly moving with every inspiration and expiration. So, he who would hope to succeed in the use of vaginal pessaries should not only have a large stock to select from, but should be a man of infinite resource.

There are a few practical points in connection with this case to which I would like to call your attention. Owing to the frequent occurrence of pelvic peritonitis following the use of the uterine sound, there is a strong prejudice in the minds of the profession against its use. If you will observe the following rules, you need have no fear in introducing the sound into the uterus whenever necessary. First, see that the sound is absolutely clean; secondly, that salpingitis, as evidenced by former attacks of pelvic peritonitis, does not exist; thirdly, that the woman be not pregnant; and, lastly, that all acute and subacute inflammation be subdued by proper treatment.

By observing these rules I use the uterine sound whenever required for replacing the uterus, and have no cause to regret doing so. This woman will return at the end of a week, and you will have an opportunity to judge of the effects of our treatment.

CLINICAL MEMORANDA.

LARGE ANEURISM OF THE THORACIC AORTA.[1]

BY AUGUSTUS A. ESHNER, M.D.,
CHIEF CLINICAL ASSISTANT, MEDICAL OUT-PATIENT DEPARTMENT, JEFFERSON MEDICAL COLLEGE HOSPITAL.

H. W. G., a compositor, fifty-four years old, was admitted to Jefferson Hospital late in the day on

[1] Presented to the Pathological Society of Philadelphia, October 15, 1892.

September 20th, with a history of having shortly before vomited a large quantity of bright-red blood—more than a pint, it was stated. The man was extremely sallow, and rather emaciated. He related that nine months previously he had had an attack of influenza, in the sequence of which his other symptoms seemed to appear. He found that he had some difficulty of swallowing, with a sense of lodgment of ingested food at a point to the left of the ensiform cartilage, to which eructation gave some relief. Flatulent distention occasioned distress. To these manifestations vomiting was added, the rejection of food taking place usually during the act of eating, practically as soon as the act of swallowing was completed. Nausea was wanting, and there had previously never been hematemesis. The man had lost forty pounds in weight in the course of nine months. He complained of severe pain in the epigastric region, and of boring pain in the spine at a corresponding level. There was a history of bilious attacks, in which the patient stated that there had been some discoloration of the skin. The bowels were, as a rule, constipated. I saw the man but once during life, and made but a partial examination. On percussion of the abdomen an area of dulness was found within the limits formed by the middle line on the left, the flank on the right, the costal arch above, and a line an inch below the level of the umbilicus, which offered an obscure sense of resistance. The remainder of the abdomen yielded a tympanitic note. The resident physician, Dr. Arnold, had listened carefully to the heart, and had detected no adventitious sound. The pulse was weak. There was no edema. There was no shortness of breath, and the man maintained the recumbent posture in comfort. There was no cough. There was moderate spitting of blood-mixed saliva. Following the initial hemorrhage the stools had been observed to be tarry. From the apparent cachexia, the emaciation, the dulness on percussion, the sense of resistance on palpation, the situation and character of the pain, and the course and duration of the case, a diagnosis of carcinoma of the stomach was made. On the second day after his admission to the hospital the patient again vomited a considerable quantity of blood and passed some eight ounces by the bowel, syncope following. He failed to respond to stimulants, and died without reacting.

At the autopsy, held eight hours after death, the intestines were found moderately, and the stomach considerably, distended, especially toward its cardiac extremity. When opened, the stomach was found to contain about a pint and a half of partly fluid and partly clotted blood. The small and large intestines likewise contained large quantities of dark, semi-liquid blood. The pericardial cavity contained about four ounces of turbid serum and a few flakes of recent lymph. The anterior and posterior surfaces of the heart presented several longitudinal patches of old organized exudation. The ventricles were contracted, the left with particular firmness. The left auriculo-ventricular orifice admitted the tips of three fingers. The mitral leaflets were moderately thickened. The aortic semilunar leaflets presented a similar change, though in much slighter degree. The aorta beyond was rough, irregular, and presented evidences of advanced inflammatory and degenerative changes. The left lung was everywhere bound by adhesions of considerable firmness, and its removal was attended with a good deal of difficulty. The lung was found to have been compressed, and to have been much reduced in size. In the course of its removal it was seen to be in intimate relation with a large elastic mass situated in the posterior mediastinum, rather to the left of the median line, behind the pericardial sac, in front of the esophagus and extending from about the level of the sixth dorsal vertebra to the level of the twelfth dorsal vertebra. The right lung was free, except over a small extent of surface posteriorly and superiorly. The apices of both lungs presented slight puckering on the surface, but on section there was no indication of infiltration of the parenchyma. The bronchial glands were enlarged and anthracotic. The retro-peritoneal glands were slightly enlarged, but firm and elastic. On section they presented a gelatinous appearance. The liver appeared of normal size and texture; its cut surface was pale. The spleen was elongated and flattened. The organ was pale on section, but its gross appearance was otherwise unchanged; its texture was of diminished consistency. The kidneys were, perhaps, slightly reduced in size, and presented numerous cysts upon the surface. On section pallor was evident, while both cortical and medullary tissues seemed to have undergone diminution. The capsules stripped readily, exposing a smooth surface. The bladder contained about four ounces of pale urine. Its walls were thickened. The prostate was considerably enlarged. The thoracic and abdominal viscera were removed *en masse*. The mediastinal mass was proved to be an enormous aneurism of the thoracic aorta that had ruptured into the esophagus. The aneurism was about seven inches long, about five and a half inches transversely, and four inches antero-posteriorly. There was considerable thickening, discoloration, and infiltration of the esophagus about the irregular and ragged opening through which the fatal hemorrhage had taken place. The adjacent portion of the left lung was likewise discolored and infiltrated. The bodies of the vertebræ were not affected. The aneurism was filled almost entirely with a fibrinous, laminated clot of firm, elastic consistence. The lumen of the abdominal aorta, as it came off from the aneurism, corresponded with the circumference of the little finger.

The case here reported presents a number of interesting features. First, as to diagnosis. It is doubtful if this could have been made absolutely by physical examination. The growth was not accessible to palpation, percussion, or auscultation; but the occurrence of hemorrhage, with the subjective sensation of an obstruction in swallowing on the part of the patient, should at least have excited suspicion. The passage of a probang was absolutely contra-indicated. The great size of the aneurism and its unusual situation are also interesting. It is surprising that more pronounced cardiac symptoms were not occasioned, interfering with the action of the heart as the tumor must have done. The development of the aneurism must have been extremely insidious and gradual, to allow of the accommodation of the adjacent structures to the presence of such a large disturbing element, for the patient had pursued his usual avocation until the time of his admission to the hospital.

MEDICAL PROGRESS.

Lepra.—At the Second International Dermatological Congress, recently held at Vienna, KALINDERO (*Wiener Medizin. Presse*, 1892, No. 39, p. 1539) expressed himself strongly in favor of the contagiousness of lepra. It appears that there is a close resemblance between lepra and syringomyelia. In a given case, the dissociation of the sensory disturbances, the integrity of the superficial muscles of the face, the absence of spots upon the skin, the integrity of the hair, and the deviation of the spinal column would be in favor of syringomyelia; while the loss of tactile sensibility, the atrophy and paresis of the superficial muscles of the face, the existence of nodular thickenings of some of the nerves, the presence of spots upon the body (especially if insensitive), the spontaneous disappearance of the phalanges, the marked changes in the nails, and the partial or complete loss of the hair would be in favor of lepra. The difficulty of diagnosis would be greater in a case of syringomyelia of so-called Morvan type, especially if there were no alteration of sensibility, or, in case of syringomyelia of insidious onset or pursuing an atypical course. In such cases it has proved useful to examine, for lepra-bacilli, the serum obtained from a blister artificially produced on the third or fourth day after the application of the vesicant, at the moment at which suppuration is about to take place. Therapeutically, the best results have been obtained from the employment of crude petroleum, of which from fifteen to twenty-five minims may be administered in capsules from four to six times daily, and ointments of from 1 to 10 per cent. may be applied topically.

The Disinfection of Cholera-dejecta by means of Milk of Lime.—To determine the efficacy of milk of lime as a disinfectant for the stools of cholera-patients, PFUHL (*Deutsche medicin. Wochenschr.*, No. 39, p. 880) made a series of tests. In the first test he treated the recent evacuation of a cholera-patient with an equal quantity of milk of lime, and carefully mixed the two for a minute and a half. A bacteriologic examination made after the lapse of an hour failed to disclose the presence of cholera-bacilli. In the second test the stool and the lime were mixed for only a brief time. Again, no bacteria could be found after an hour. In the third test the milk of lime was merely added to the stool. The former at once sank to the bottom, without mixing with the latter. After an hour bacilli were yet to be found in the stool, although in smaller number than in the untreated stool.

THERAPEUTIC NOTES.

Protective Inoculations against Cholera.—KLEMPERER (*Berliner klin. Wochenschr.*, 1892, No. 39, p. 969) has succeeded in conferring upon man immunity to cholera by previous treatment with cultures of cholera-bacilli, three days old, that had been kept for two hours at a temperature of 158°. It was found that the blood-serum of persons treated with injections of from 0.1 to 1 c.cm. of such cultures had the property of conferring immunity upon guinea-pigs. Some persons exhibit a natural immunity to cholera, but their blood-serum is protective in much less degree for guinea-pigs. The degree of immunity appeared to be dependent upon the intensity of the protective intoxication. The degree of immunity was also greater in inverse proportion to the degree of modification to which the cultures were subjected by exposure to heat. It was clearly demonstrated that moderate quantities of living cholera-bacilli can be injected subcutaneously without occasioning unpleasant symptoms.

For Cholera.—To supply the water, in which the blood and the tissues are deficient in cholera, and to equalize the circulation, SAMUEL (*Deutsche med. Wochenschr.*, 1892, No. 39, p. 881) recommends continuous subcutaneous infusion of a 0.6 per cent. solution of sodium chloride, instituted early, as soon as symptoms of inspissation of the blood appear, and kept up until these symptoms have disappeared, as indicated by the resumption of the secretion of urine. For the purpose it is necessary to have an irrigator, mounted over the bed of the patient, with two tubes controlled by stop-cocks, and two trocars and canulæ. The infusion can be practised in suitable situations, such as the infra-clavicular regions. As swelling occurs from the accumulation of fluid beneath the skin at a given point, the supply of fluid can be cut off temporarily, and the swelling be made to disappear by gentle massage.

For Cholera.—When, in the course of an attack of cholera, the pulse, though weak, is tense, TRUSSEWITSCH (*St. Petersburger medicinische Wochenschrift*, 18 2, No. 36, p. 431) recommends the administration of nitroglycerin, one or two drops of a centesimal alcoholic solution being dropped on the tongue three or four times a day. If, on the other hand, the pulse is small and compressible, eight or ten drops of aromatic spirit of ammonia dissolved in water may be injected beneath the skin.

SAMTER (*Deutsche medicin. Wochenschrift*, No. 38, p. 860) proposes, for the treatment of the fulminant cases of cholera, intravenous or subcutaneous injections of a saline solution, followed by venesection as soon as the circulation has been actively established.

For Cholera.—

℞.—Spts. menth. piper.
Spts. camphoræ
Spts. chloroformi
Tinct. capsici
Tinct. zingiberis
Acid. hydrocyanic. dil. . . . āā f ʒij.
Tinct. digitalis . . . . f ʒj.
Spts. vini rectificat. . . . f ʒij.
Glycerini . . . . . f ʒiij.
Tinct. catechu . . . . f ʒvj.—M.

S.—ɱxx in a teaspoonful of water every fifteen minutes until vomiting and purging cease.

WALKER, *Medical Reporter*, vol. v, No. 9, p. 128.

For Chronic Scaly Eczema.—

℞.—Acid. salicylic. . . . . gr. x.
Chrysarobin,
Ammonii sulpho-ichthyolat. āā gr. xxiv.
Vaselini flav. . . . . ʒj.—M.

Ft. ung. S.—Apply topically.

UNNA, *Monatshefte f. prakt. Derm*, No. 6.

THE MEDICAL NEWS.

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SATURDAY, OCTOBER 29, 1892.

THE RELATIVE MORTALITY OF ETHER AND CHLOROFORM ANESTHESIA.

IN preparing statistics upon the subject of ether and chloroform as anesthetics, we have endeavored to adhere closely to certain principles of criticism, which we reluctantly adopted as absolutely necessary in order to reduce the evidence before us to coherence. Data of varying degrees of merit, and obtained under such different conditions that it is the greatest carelessness to range them together as facts of equal weight, are nevertheless commonly found side by side. From such statistics we could not draw any definite conclusions. Nay, the conditions are ignored which we proposed to ourselves as the ultimate test of the value of any series of data. Are there, we asked ourselves, any observations recorded that show that ether and chloroform have been fairly tried together upon that common ground on which both may enter as anesthetics and display their peculiar powers upon cases regularly selected with care and judgment? Pursuing this object, we have been on our guard against any bias in ourselves, and have carefully searched for it in the writings of others.

The number of papers to be examined is astonishingly great. Most of them, we are sorry to say, are liable to the suspicion of partiality. Among those of doubtful authority, from our own point of view, which, it must be remembered, is purely critical, are the following: The experimental; those recounting individual experiences with ether alone, or with chloroform alone; those that assume that the use of chloroform ought to be entirely abandoned; the controversial and polemic, of which unfortunately there are some. Secondly, we have noted as instances of that frame of mind which is unsuitable for fair judgment, such statements as SURGEON-MAJOR LAWRIE'S, that "the most important result of the labors of the Hyderabad Commission has undoubtedly been to establish the proof that chloroform has never, under any circumstances whatever, a direct action upon the human heart"; or M. JULLIARD'S confession that for ether he has long been "*un partisan convaincu*"; or again, his saying, too loosely we feel, that "PROF. TRIPIER has administered ether without accident 6500 times, while on the other hand he had a case of death *sur un nombre infiniment moindre de chloroformisation.*"

It is enough to observe here that by following any party or school we cannot arrive at the truth. In our own judgment, it is assuredly unfortunate that men will use one anesthetic exclusively, as these gentlemen do, for some cases are fit for chloroform, others for ether, others again for nitrous oxide gas, still others, perhaps, for the A. C. E. mixture.

Naturally, we have not found many statistics that are free from the faults that we have either pointed out or hinted at. Indeed, we know but one that is accurate, and has besides the merits we required. Such statistics, we felt bound, must show observations of scientific accuracy, taken during a considerable time, under uniform conditions, by men of approved ability and knowledge entirely interested in a fair trial of ether and chloroform, using neither one nor the other exclusively, but both alike and as nearly as possible an equal number of times; with registrations made at the time of the operation, of the number of cases, with the deaths and accompanying circumstances. By means of these statistics and these alone, may we hope to arrive at a final judgment on the controverted claims of ether and chloroform. We append a table of these desirable data. It is compiled immediately from the *St. Bartholomew's Hospital Reports.* It includes all the observations made:

Year.	Number of cases. Chloroform.	Ether.	Ether preceded by nitrous oxide.	Deaths. Chloroform.	Ether.	Ether preceded by nitrous oxide.	Remarks on the cases pertaining to chloroform.
1875	617	120	764	None	None	None	
1876	670	28	1004	"	"	"	
1877	699	23	1123	"	"	"	
1878	794	15	1009	1	1	"	Syncope after operation.
1879	975	23	984	1	None	"	Syncope after operation.
1880	1055	43	1304	None	1	"	
1881	1072	85	1209	1	None	"	Syncope before operation.
1882	1349	337	1076	2	"	1	
1883	1421	566	1156	2	"	None	
1884	1244	1016	704	None	"	"	
1885	1331	1118	386	"	"	"	
1886	1425	1109	567	1	"	"	Syncope before operation.
1887	1702	1197	662	1	"	"	Syncope after operation.
1888	1711	1003	349	1	"	"	
1889	1601	810	509	2	"	"	Syncope.
1890	1860	998	135	1	1	"	Syncope.
Total	19,526	8491	12,941	13	3	1	
Proportion of deaths	1 : 1502	1 : 2830	1 : 12,941				

It must be admitted that these results are by no means favorable to chloroform, yet we do not go so far as to say, with M. JULLIARD, that we must show these statistics to be inexact, or renounce chloroform. We see that the use of chloroform has increased with moderate fluctuations, reaching a maximum in 1890, and a preponderance over ether in that year of 727 cases with one death for each anesthetic. It is evident, then, that the surgeons had sufficient confidence in chloroform to continue its use—a fact in its favor. Whether this confidence is deserved we may judge by an examination of the circumstances attending the deaths. In the right-hand column of the table we have noted the cases of syncope; these may be left to speak for themselves. Of the remaining deaths, we may ascribe two to asphyxia. The others, we think, were highly probable with any anesthetic. Thus we have nine deaths out of thirteen which sufficiently enforce the peculiar dangers of chloroform. With these facts before us we cannot feel any great degree of confidence in that anesthetic. If, on the other hand, we look at the circumstances attending the three deaths under ether, we shall see that they were almost inevitable. The report of the first is as follows:

(1) A man, aged forty-seven, died when under the influence of ether. He was suffering from intestinal obstruction for which lumbar colotomy was undertaken. In the morning he had had a severe attack of dyspnea. He was in a state of profound collapse at the time of the operation; his belly was tumid, his respiration shallow, and his pulse feeble. He vomited frequently, and after inhaling ether for ten minutes became livid and never again rallied.

(2) A man, aged sixty-one, suffering from strangulated inguinal hernia, died under the influence of ether. He had been delirious the previous night; his pulse was irregular and feeble, and he had constant vomiting. During the operation the pulse became imperceptible, and finally respiration ceased. At the necropsy the heart-substance was found slightly fatty, the cavities were nearly empty, containing no clots. The lungs were emphysematous; all the posterior parts were engorged with blood.

(3) A man, aged fifty-six, died under the influence of ether. He was a drunkard and had sustained a fracture of the tibia and fibula. After suffering from delirium tremens for ten days, ether was administered in order to reset the broken bones. This was satisfactorily done, and three minutes after the cessation of the administation of ether the heart suddenly ceased beating, then respiration stopped, and the patient died. A post-mortem examination showed the lungs much engorged, a flabby heart, and a fatty liver.

We have given great prominence to these statistics on account of the merit they possess and the excellent model they furnish. We cannot be too grateful for them.

Next to the statistics of St. Bartholomew, we selected others from the *Proceedings of the German Chirurgical Society*, Berlin, April, 1891. They are inferior in many particulars, and they furnish very few administrations of ether. The data were supplied by 66 colleagues, chiefly German, besides 3 Austrian, 3 Russian, 2 Swedish, 1 each from Holland and Belgium. BARDELEBEN, from the Charité, 1878–90, sends statistics of over 12,000 administrations of chloroform with 7 deaths. In addition were reported:

	Cases.	Deaths.	Asphyxias.
Chloroform alone,	22,656	6	71
Ether alone,	470	0	0
Ether and chloroform,	1055	0	5
		6	76

There was thus one death in 3776 administrations of chloroform. The duration of the narcosis in 2732 cases was one hour; in 278 a longer time, sometimes from 150 to 155 minutes. In the Charité, in the last six years, 1 c.cm. of chloroform was used

per minute during the narcosis. The greatest amounts used during an operation ranged from 150 c.cm. to 180 grams.

Next we give the results of individual experience, furnished by 42 authors. They were published in February, 1891, by M. JULLIARD (*Rev. Médicale de la Suisse Romande*, 1891, vol. ii), who based them on COMPTE'S table. We have added some others published since.

CHLOROFORM.

	Administrations.	Deaths.	Proportion.
1. Andrews	117,078	43	1 : 2,721
2. Coles	152,260	53	1 : 2,873
3. Richardson	35,165	11	1 : 3,196
4. Ker	36,500	1	1 : 36,500
5. Rendle	8,000	3	1 : 2,666
6. Army Circular	80,000	7	1 : 11,448
7. Baudens	10,000	1	1 : 10,000
8. Nussbaum	15,000	0	
9. Billroth	6,000	2	1 : 3,000
10. Billroth	12,500	0	
11. König	7,000	0	
12. Kappeler	5,000	1	1 : 5,000
13. Mills	4,810	2	1 : 2,405
14. Lyman	5,860	1	1 : 5,860
15. Julliard	1,000	1	1 : 1,000
16. Académie de Méd.	5,200	1	1 : 5,200
17. Anstie	3,058	21	1 : 145
18. German Statistics	7,000	1	1 : 7,000
19. Maud Hospital	500	1	1 : 500
20. 13 Eng. Hosps. (Asclepiad)	35,162	13	1 : 2,704
21. Glasgow West. Infirm.	10,000	4	1 : 2,500
22. " Children's Hosp.	2,160	0	
23. Atthill	5,000	1	1 : 5,000
24. Kashmir Mission Hospt.	5,000	0	
25. Buchanan	10,000	1	1 : 10,000
26. Wallace	14,000	0	
27. Lawrie and Syme	45,000	0	
28. R. Williams (Middlesex)	208	1	1 : 208
Total	638,461	170	1 : 3,749

ETHER.

	Administrations.	Deaths.	Proportion.
1. Andrews	83,815	4	1 : 20,953
2. Coles	92,815	4	1 : 23,204
3. Gerster	10,791	6	1 : 1,798
4. Lyman	16,542	1	1 : 16,542
5. Warren	20,000	0	
6. McGunn	13,000	0	
7. Bigelow	15,000	0	
8. R. Williams (Middlesex)	1,050	1	1 : 1,050
9. Mills	6,440	2	1 : 3,220
10. Julliard	3,654	0	
11. Bruns	300	0	
12. Tripier	6,500	0	
13. Dumont	750	0	
14. Ollier	29,500	0	
Total	300,157	18	1 : 16,675

If we add DR. RABATZ'S experience with ether, 150,000 administrations without a death, we have the weightiest evidence yet adduced by a single expert of the superior safety of anesthesia with ether.

We have not space for a critical estimate of the value of these tables. We dare not draw any bold conclusions from them. A glance will show that in some hands ether has not proved any safer than chloroform, but this statement is not entitled to much weight, because we do not know what causes may have brought about this result, nor how under the same conditions chloroform would have behaved. In conclusion, we confess that before our survey we were disposed to prefer chloroform, but we have seen enough to convince ourselves that there is wisely going on a considerable retrenchment in its use, and that there is destined to be a still greater decline. How great this retrenchment ought to be is an interesting question which we should like to be able to determine. Unfortunately this is impossible. Even among men of the greatest practical skill and experience there is a difference of opinion as regards the choice of ether or chloroform in cases in which it seems to us one is clearly preferable. We refer to the operations of abdominal surgery. In such cases, MR. LLOYD, whose paper in the *Lancet*, March 14, 1891, is distinguished by admirable clearness and good sense, prefers ether. On the other hand, DR. GAILLARD THOMAS asks if chloroform would not be better, at least in celiotomies. We take leave of the matter with this example, among others that we have noticed, of the unavoidable perplexity and disagreement of all who interest themselves in the various claims of the two anesthetics—a disagreement that, while it lasts, will suffer the choice of a suitable anesthetic to remain with each practitioner, and leave the way open for abundance of error.

CONTROVERSIAL SCIENCE AND POLITICS.

NOT infrequently thoroughly scientific facts have been condemned through unjust and partial criticism, made by prejudiced individuals. Numerous instances of this have occured in the histories of discoveries, and while many superstitions have been overthrown, the tendency to criticise everything adversely has not markedly lessened. For example, when KOCH'S discovery of the bacillus of cholera was announced, an English authority investigated the discovery and reported adversely upon it.

Scientific criticism is always welcome, as it maintains carefulness, secures thoroughness, and guards against possible imposition. Occasionally, however, unscientific, demagogic, partial, and prejudiced criticism develops a very incorrect impression concerning some discovery or asserted observa-

tion. This is nowhere more likely to occur than in departments, or laboratories, controlled by political influence. What is called "pull," in the estimation of scientific men, wrecks many an investigation originating from department sources. There are many laboratories controlled by Government and State influences, but to comparatively few is science indebted for advance in knowledge. It is another unfortunate fact that not infrequently the layman looks upon these departments as furnishing authoritative statements, and the position of the investigator is such as to give them wide dissemination. Circulars and bulletins are issued and alleged information is diffused in a manner equalled by no private or college enterprise. The whole subject of political laboratories, investigations, etc., for scientific purposes is in such a chaotic condition as to make us discredit much originating from these sources that might otherwise be of value.

As a recent example of this sort of criticism, we have a discussion arising between DR. FRANK BILLINGS, of the Patho-biological Laboratory of the State of Nebraska, and the United States Department of Animal Industry, with specific charges against the Hon. Secretary of Agriculture and many of his subordinates. In letters, public and private, the Department has criticised DR. BILLINGS'S statements in a most unscientific manner. The perfervid criticisms are those one would expect from the political platform, and are of that order of intelligence depending for its efficiency upon dogmatic mis-statements of facts. No doubt DR. BILLINGS has just cause for complaint, and justly objects to these attacks. It is hardly to be presumed that his book, entitled *Inoculation a Preventive of Swine-plague, with the Demonstration that the Administration of the Agricultural Department is a Public Scandal; an Exposure by Frank S. Billings, M.D., Director of the Patho-biological Laboratory of the State University of Nebraska*, should be published, except by a conscientious believer in the theories advanced. The error of DR. BILLINGS lies in the manifest return of left-handed compliments. True, he is repaying the coin he has received, but that is the very point wherein he errs.

The book is not for sale, but is evidently intended for distribution, largely among the lay members of the community. How much better it would have been had DR. BILLINGS laid before the scientific world a less sensational and a more scientific article. But few scientific men will hold the book other than an obstacle to scientific progress, and as bringing discredit upon the laboratory of DR. BILLINGS, while at the same time doing but little harm to the mistaken ideas that he attacks. Every scientific man knows that in this country, in which the struggle for political power is rife, how little we are to expect from departments whose heads are individuals appointed from purely political motives. Can we expect a new Secretary of any Department to come in and pick up the thread where his predecessor has dropped it? Each has his hobbies, and while one individual will be interested in the study of hog-cholera, it is probable that the next occupant of the chair will be interested in "spavin" or "fluke disease," so that this confusion of object adds to the difficulty and retards scientific investigation.

The ideal laboratory of the Government should be organized with a thoroughly conscientious director, with an unlimited term of office, and if a scientist of character and ability has a subject he desires to investigate he should be afforded ample and abundant facilities, be paid a salary, should have his expenses borne, and, when he has completed the work, it should be published by the laboratory and laid before the scientific world. If it is found that his work is deserving of credit, he will be applauded; if such is not the case, the result will be manifest, and the experiment not repeated. Other safeguards may be thrown around the institution to prevent cranks and impostors from gaining ingress. Investigators may be recommended by scientific societies or colleges, or by the representatives of the different services—the Army, the Navy, or the Marine-Hospital Service—and the political element thus removed. Until some such arrangement is made, outrages upon scientific progress and scientific education, such as the present controversy, however just it may appear to laymen, will be continuously occurring, to the discredit of all parties concerned.

A QUESTION OF NOMENCLATURE.

THE letter of PROFESSOR FORBES in the present issue of THE NEWS arouses an opportune query. The restriction of the term *symphysiotomy* to section of the pubic symphysis is, of course, not authorized by the etymology of the word, and if in future the division of some other than that of the pubic symphysis should acquire exceptional importance, confusion might arise unless some further etymologically unauthorized coinage be invented to express

it. The word *pubiotomy* is found in the medical lexicons, but it is difficult to see why it should be thus spelled instead of the more correct *pubeotomy*. It may be said that in the operation in question it is the symphysis and not the pubic bone that is divided, but this is plainly hypercritical, and the suggestion that the adjective *pubic* may be added to designate the particular symphysiotomy would recall the fact that this would require two words to express what the single word (pubeotomy) gives us with equal precision. Besides this, in case of other possible symphysiotomies, we would have somewhat absurd terms of "great length and thundering sound" well fitted to "amaze the gaping rustics ranged around." Will the obstetricians permit us to use pubeotomy?

CORRESPONDENCE.

EXPERT TESTIMONY.

To the Editor of The Medical News,

Sir: An opportunity was lately given to me of witnessing the manner in which expert testimony is given.

Two prominent physicians, after a very superficial examination lasting about two minutes, testified upon oath to the insanity of a convict. I do not believe that these men are considered experts in insanity. I cannot believe that any conscientious alienist would attempt to give a positive opinion after so hasty observation, and especially in prison, where so many motives exist to cause a prisoner to feign mental trouble. But these physicians do not hesitate to give expert testimony, and the court considers the testimony expert.

Another case: A prisoner, suffering with eye-trouble, applies for pardon upon the ground that further confinement will destroy sight. The physician-in-charge calls a specialist in consultation, who certifies that confinement can have no special influence on the course of the malady. Another specialist is allowed to see the prisoner. He looks at him hastily, expresses a desire to see him pardoned, and writes out a certificate that further confinement will injure the eyesight The specialists are both of good standing in the profession, but the second was called by the prisoner's friends, and acted accordingly. Is not this knavery of the worst kind? A man who, knowingly, will use his profession for such ends deserves punishment.

Still another case was related to me but yesterday by a colleague: A young lady was thought by some of her acquaintances to be of unsound mind. Two very prominent alienists were consulted, who certified that she was of sound mind. But it was necessary to please relatives who wished or believed her insane, and, accordingly, these relatives summoned two other equally prominent alienists, who promptly pronounced her insane.

The public believes that experts can be obtained to swear to anything, and I believe that it is right. As long as the courts allow testimony to be partisan, and allow the defence and the plaintiff each to produce its witnesses, expert or inexpert, this testimony will be open to the charge of *influence*. The *court* must furnish the expert evidence. It must provide experts who will have no other interests to serve than those of truth and justice, and it must provide them with all the means necessary to carry out their observations. Criminals are to be adjudged insane only after most careful and continued watching and under varying conditions. Our court-rooms will then no longer have enacted in them medical farces in which any doctor who chooses can assume a title rôle and bring ridicule and dishonor upon the profession. The public needs protection, and so does the profession.

Very respectfully,

M. V. Ball, M.D.,
Physician Eastern State Penitentiary.

"PUBEOTOMY," NOT "SYMPHYSIOTOMY."

To the Editor of The Medical News,

Sir: In the editorial article, "Celiotomy *versus* Laparotomy," in The News of the 15th inst., I entirely agree with you when you say in the concluding paragraph: "We should, however, take a decided stand against the misapplication of terms in our science."

The cutting of the junction of the two pubic bones, I humbly submit, should be called *pubeotomy*. This operation is now performed for the purpose of widening the pelvic diameter, thereby accomplishing, in certain cases of difficult labor, a safe delivery to both mother and child, as has been of late so well and so frequently demonstrated.

Now, *symphysiotomy* is a term that may be applied to any symphysis, and we have several of them in the human body: thus, the sacro-iliac symphysis is not far from the symphysis of the pubes.

The Greek word συμφύσις (from συμφύω) means a growing together, a natural joining of limbs (Liddell & Scott, Greek Lexicon); and symphysiotomy may require the context to explain to readers what symphysis has been the field of operation.

The name pubeotomy is illuminating; it is restricting in its meaning to the part cut; it is euphonic and in strict keeping with a proper scientific nomenclature.

The operation of making a section of the junction of the two pubic bones in certain difficult cases of labor is now attended with such extraordinary success, when practised under strict aseptic surgery, that it is a fixed procedure in our art, and has manifestly "come to stay." It is an immense advance.

Pray let it have a proper name—*pubeotomy*, from the Latin *pubes* (plural), and *temno*, I cut (Greek τέμνω).

W. S. Forbes, M.D.,
Professor of Anatomy, Jefferson Medical College.
1704 Walnut Street, Philadelphia.

The Southern Surgical and Gynecological Association will be in session on November 15, 16, and 17, 1892, at Louisville, Kentucky. An interesting preliminary program has been issued. Dr. J. McFadden Gaston, of Atlanta, Georgia, is the president, and Dr. W. E. B. Davis, of Birmingham, Alabama, the secretary.

REVIEWS.

A TEXT-BOOK OF THE PRINCIPLES AND PRACTICE OF MEDICINE. FOR THE USE OF STUDENTS AND PRACTITIONERS. By HENRY M. LYMAN, M.D., Professor of the Principles and Practice of Medicine in Rush Medical College, Chicago. With 170 illustrations. 8vo., pp. 920. Philadelphia: Lea Brothers & Co., 1892.

THERE is no dearth of books on the practice of medicine, but there will always be place for more good ones. This book falls in the category of the good ones. The text is well written, fairly illustrated, and thoroughly up to the times. Modern pathologic conceptions are presented and the indications for treatment are in thorough accord with recent research and the results of the best clinical observation. The work is divided into thirteen parts. The first includes a consideration of the subjects of growth and development; regressive and progressive disturbances of nutrition; tumors; disorders induced by disturbances of circulation; contagion and infective diseases; inflammation; and fever. In the second part the parasitic and infective diseases are successively taken up. Then, in the remaining parts the diseases of the various systems are presented in the following order: Alimentary canal; liver, pancreas, peritoneum, and spleen; organs of respiration; organs of circulation; the blood; nutrition; kidneys and genito-urinary system; nervous system. Little of importance has been omitted, while most of the statements made can be accepted as authoritative. While cordially commending the many merits of the work, we have to point out a number of minor deficiencies which another edition will no doubt see made good. To stain tubercle-bacilli, it is recommended that aniline-oil fuchsin be used and that the decolorization be made with alcohol and nitric acid. Alcohol is objectionable in this connection, as the risk is incurred of decolorizing the tubercle-bacilli with other organisms present. We have found the best method of detecting tubercle-bacilli in cover-glass preparations to be that of Gabbett: first staining with carbol-fuchsin and then simultaneously decolorizing and counter-staining with a dilute aqueous solution of methylene-blue, to which 25 per cent. of sulphuric acid has been added. We have looked in vain for a recommendation of creasote in the treatment of tuberculosis; surely an agent so potent for good in the hands of many is worthy of some reference. It might seem as if the treatment of erysipelas by means of pilocarpine were scarcely known outside of Philadelphia, for it finds no mention in this book, as well as in some others. In our hands the subcutaneous injection of the remedy has reacted with almost specific certainty. Mercuric cyanide has likewise been most successfully employed by hypodermatic administration.

The chapter on diseases of the alimentary canal, otherwise so complete in detail, fails to refer to the condition known as nigrities linguæ, black tongue, or hairy tongue, a manifestation not so exceedingly rare, we believe, if specially looked for. Among the causes of obstruction of the esophagus, aneurism of the aorta is not mentioned; nor is the necessary caution as to the exploratory passage of a bougie when such a condition is to be suspected. The word appendicitis does not occur, while the condition is described as a part of typhlitis.

"Transportation of the abdominal organs" is spoken of, as if the condition were perhaps an acquired and not a developmental one.

Nitro-glycerin or other nitrite, with or without strychnine or digitalis, is of unquestioned service in fatty degeneration of the heart. The fact seems worthy of notice. So does the fact that strophanthus tincture has proved of undoubted value in the treatment of exophthalmic goiter.

The methods of blood-examination have not been given; nor in the description of leukemia has any reference been made to the results of the labors of Ehrlich, particularly in regard to the diagnostic significance of the various kinds of leukocytes.

In the section on renal diseases, it is stated of Fehling's solution that "when properly prepared, each cubic centimeter of the solution is reduced by five milligrams of glucose," but the formula for the preparation of the solution is not given.

A most commendable feature is the introduction of the subject of alcoholism. We doubt, however, if "acute alcoholism requires little treatment beyond a favorable opportunity for sleeping off the effects of the intoxication." This end is not always readily secured. The best results are perhaps to be obtained by emptying the stomach if there is any likelihood of its containing alcohol, and under any circumstances giving a mercurial followed by a saline. While morphine may be dispensed with, it is doubtful if bromide, with or without chloral, can. It is also a peculiar fact that the use of tobacco during convalescence from delirium tremens is almost certain to renew the attack. We are glad to note that hemorrhoids receive consideration, and that a section is devoted to the management of infective diseases.

The statement that acute cerebral infantile paralysis is probably dependent upon an infective cause is likely to mislead. Hemorrhage or thrombosis is the more likely explanation.

We could have wished that the terms cancer, phthisis, and Bright's disease had given place to carcinoma, tuberculosis, and nephritis, respectively.

The index could usefully have been lengthened. We cannot refrain from adding a word as to the orthography. If it be granted that it is unphilologic to universally use the vowel instead of the diphthong in such words as hemorrhage, anemia, ameba, *et al.*, it is both inconsistent as well as unphilologic to employ the vowel in one place and the diphthong in another. Thus, hemorrhage is spelled with the vowel; hemoptysis with the diphthong. We have no desire to be hypercritical. The strictures that we have made are offered in a most friendly spirit. It is our hope that a good book will be made better by strengthening its few weak places.

GENITO-URINARY AND VENEREAL DISEASES. By CHARLES H. CHETWOOD, M.D. (*The Students' Quiz Series.*) Philadelphia: Lea Brothers & Co., 1892.

IN the well-chosen questions and comprehensive answers of which this manual is composed, the special

field of surgery designated by its title is very fully covered. The book is well up to the times, and, in general, the descriptions of the disease-processes and their treatment are good and well expressed. Especially is this true in regard to that part of the book which has to do with venereal diseases.

It seems impossible, in literature of the class to which this manual belongs, to avoid a certain amount of inaccuracy in some of the replies to the multitude of questions given. This is doubtless due to the constant necessity to condense. We cannot refrain, for example, in the present instance, from taking exception to the descriptions of dilating internal urethrotomy and of external urethrotomy with a guide; and also from questioning whether the generous use of the aspirator recommended for recurring retention of urine due to enlarged prostate would meet with general approval.

Taken all in all, however, this number of the "Quiz Series" is very creditable, and, if used for the purpose for which it is intended, will find amongst medical students many friends.

A TREATISE ON HYGIENE AND PUBLIC HEALTH. Edited by THOMAS STEVENSON, M.D., F.R.C.P. (Lond.), Lecturer on Chemistry and on Medical Jurisprudence at Guy's Hospital; Official Analyst to the Home Office; and SHIRLEY F. MURPHY, Medical Officer of Health of the Administrative County of London. In two volumes, 8vo., with illustrations and plates. Vol. I, 1013 pages. Philadelphia: Blakiston, Son & Co., 1892.

THE editors, in superintending the preparation of these volumes, have had the coöperation of writers whose names speak for the character of their contributions.

The chapter on "Air," by J. Lane Notter, Professor of Military Hygiene, Army Medical School, Netley, is essentially similar in all its details to that in Park's *Practical Hygiene*, edited by Notter, and the same can be said of both, viz., that in a number of instances there is conspicuous evidence of unfamiliarity with recent work bearing upon certain branches of the subject. For example, in the paragraph on ozone (page 4), no reference is made to the important contribution of I'losva (*Bull. Société Chimique de Paris*, September and November, 1889), in which it was shown that much, if not all, of what have been supposed to be the characteristic reactions of ozone in the air are really due to nitrous acid, and that it is very doubtful as to whether the supposed allotropic oxygen exists in the free atmosphere at all.

On page 8 appears this statement: "That bacteria of various kinds produce disease *appears* (italics by the reviewer) now to be finally settled and accepted;" and continuing, as examples of those pathogenic forms that have been cultivated, are cited B. anthracis, B. tuberculosis, B. lepræ, and B. Obermeieri. If "B." means bacillus, as we suppose it does, then it is necessary to state that the organism described by Obermeier in the blood of relapsing fever is not only not a bacillus, but rather a spirillum or spirochetum, and has, moreover, not been cultivated. It is also doubtful if the lepra bacillus has ever been cultivated. The general tone of the paragraph conveys a feeling of doubt to the mind of the reader, and would lead a beginner to imagine that the etiologic rôle of bacteria in infectious diseases is still a matter of question.

Page 12: "The air of graveyards contains an excess of CO_2." This is not borne out by the results of analysis. On the same page credit is given to a statement that cannot be based on reliable evidence, viz., it is said that glanders and malignant pustule have been caught through the *effluvia* arising from decomposing carcasses.

From the description of Pettenkofer's method for the determination of CO_2 in the air (pages 23 to 25), it would be impossible for anyone not already familiar with the process to obtain results that could lay any pretence to accuracy.

For the bacteriologic analysis of the air the different methods are mentioned, and singularly enough that one which is now practically obsolete—that of Hesse—is the only one that is dealt with in detail. The method of Sedgwick, as described by Tucker, in Boston, which is probably the best, receives bare mention, and that of Petri but little more.

The crowning statement, however, is that with which the chapter closes; referring to the bacteria of the air it is written: "Dr. A. M. Davis, who has devoted much time to this subject, advocates a systematic description of the naked-eye characters of the different kinds of colonies as being likely to afford valuable indications, and has suggested that they should be described under the following heads." Then follow some of the points originally mentioned by Koch for the differentiation of various species of bacteria by the gross appearance of their colonies, directions that have been quoted in every textbook on the subject that has been published since the classical observations made by Koch between the years 1880 and 1883.

The article contains much that is good, particularly the section upon industrial diseases; and the suggestions respecting measurement of cubic space are most convenient. It is a great pity that it is not up to date in the points upon which particular stress has been laid.

The chapter on "Warming and Ventilation," by W. N. Shaw, F.R.S., is good. It is exhaustive in the theoretic details, and presents many points of practical value.

In the chapter on "Meteorology," by G. J. Symons, F.R.S., there is presented a description of the apparatus used in this department of work, with full directions as to the proper method of employing them. The chapter is well illustrated, and is a capital presentation of the subject.

Thomas Stevenson, M.D., F.R.C.P. (Lond.), presents an excellent monograph on "Water," including sources of water-supply; characteristics of water from different sources; storage of water; clarification and filtration; household filtration; pollution and self-purification of water; relation of impure water to disease; and methods of water analysis, microscopic, chemic, and bacteriologic. The chapter closes with an outline of the characteristics of good drinking-water. The article is strictly English, and, unfortunately, little or no attention is paid to work done elsewhere. The portion devoted to the bacteriology of water hardly comes from the pen of one familiar with the technique, or even the general considerations of the subject. It is the only part of the article that falls below the general high standard maintained throughout the balance of what is contributed.

"The Influence of Soil on Health," by S. Monckton

Copeman, M.A., M.D. Cantab., D.P.H., is ably presented, though his views upon the etiology of tuberculosis are at variance with those generally held at present. In his remarks upon dysentery no mention is made of the relation now believed to exist between certain forms of amebæ and this disease. The contributions of Kartulis, Osler, Councilman and Lafleur, Dock, and many others on this subject, have apparently not been seen.

The balance of this volume is devoted to monographs on Food; Clothing; Physical Education; Baths; Dwellings; Hospital Hygiene; the Disposal of Refuse; and Offensive Businesses; but space will not permit of our making more than a mention of them. It is impossible within these limits to present a review of the work as a whole, as each chapter forms a separate and distinct monograph by a special author.

THE ELECTRO-THERAPEUTICS OF GYNECOLOGY. By AUGUSTIN H. GOELET, M.D., Fellow of the New York Academy of Medicine, and of the New York Obstetrical Society; Vice-President of the American Electro-Therapeutic Association; Member of the Société Français d'Electrothérapie; Editor of the "Archives of Gynecology, Obstetrics, and Pediatrics." Two parts, pp. 194, 203. Detroit: George S. Davis, 1892.

THE never-ending discussions on the value of electricity in gynecology in the obstetric and gynecologic societies are not the only evidence of the interest taken in this subject, for Dr. Goelet's monograph is but the latest of four or five special treatises that have already appeared in the English language. The author's well-known command of his subject led us to anticipate an interesting and instructive treatise, and a careful perusal of the work fully justifies the expectations that had been aroused. Every statement made bears intrinsic evidence of personal mastery of the subject, and no one need fear to find signs of that free use of shears that some book-writers mistake for brain work. In no department of medical knowledge is there a greater need of this simple, direct method of conveying technical information, and the author is to be congratulated on his maintenance of a readable style throughout an unusually full and thorough discussion of the subject.

Part I is devoted to a consideration of the electrophysics and the electro-physiology of the several currents and to a description of apparatus. The portions relating to the faradic current are unusually full, and as satisfactory as the chaotic condition of exact physical knowledge of this subject now admits, the opinions of Tripier and Apostoli as to the value of coarse-wire and fine-wire currents receiving a more intelligent consideration than has been given them elsewhere. On the question of apparatus, so important to the beginner, Dr. Goelet has wisely chosen to speak plainly of his preferences, rather than permit his student-readers to wander among an unlimited display of ancient and modern pictures from which to make a possibly unfortunate choice. The electrodes recommended are also those known personally to himself, and as the author is a man of originality, working in a new specialty, they are largely devised by him. Minor criticism of instruments is easily made under such circumstances, and exception of this sort might be taken by the workers in this art to such an incongruous affair for the vagina as a clay-ball electrode covered with absorbent cotton. Of what advantage can this cumbrous and dirty clay be if it is to be prevented from coming in contact with the vaginal surface; and as the external surface is wet absorbent cotton, why not form the conducting-ball entirely of this material, wound about the carbon extremity and renewed for each application. Page 172 wisely retracts former statements as to the use of specially-prepared steel electrodes with the positive pole, and will doubtless make beginners more careful to adhere to the better rule of a platinum, carbon, or gold surface for all electrodes used within cavities as a positive pole. The sterilization of all electrodes before introduction within the uterus receives too little emphatic attention, considering the carelessness of which beginners are often guilty.

Part II is devoted to the special electro-therapeutics of certain diseases, and is divided into chapters on Disorders of Menstruation, Diseases of the Uterus, Diseases of the Appendages and Broad Ligaments, Pelvic Tumors, and minor memoranda. In this part the author is at his best, and has produced a series of wise essays and rational directions for treatment that will be found of great value to all that employ electricity in gynecology. The discussion of the subject of galvano-tapping in pyosalpinx is particularly unique and original. Tempered by the statement that older remedies are used conjointly with electric energy whenever thought advisable, these delineations of the use of strong galvanic and well-selected faradic currents in certain definite diseases should do much to stem the tide of surgical excess now directed toward the same class of affections. Taken as a whole, the work ranks among the best classes of special treatises, as well as having the advantage of being the latest in this particular field.

NEWS ITEMS.

The St. Louis Medical Era is the name of a new journal, of which the first number appeared in September. Dr. S. C. Martin is the editor.

The Third International Congress of Physiology will be held at Berne in 1894.

BOOKS AND PAMPHLETS RECEIVED.

The Effect of Diseases of the Ear upon the General Condition. By William Cheatham, M.D. Reprint, 1892.

Observations on the General Pathology of Cancer, Especially of the Breast. By W. Roger Williams, F.R.C.S. Eng. No. 2: "The Influence of Age." Reprint, 1892.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, NOVEMBER 5, 1892. NO. 19.

ORIGINAL ARTICLES.

A REVIEW OF SOME OF THE MORE IMPORTANT PECULIARITIES OF THE SPIRILLUM ("COMMA-BACILLUS") OF ASIATIC CHOLERA.

BY A. C. ABBOTT, M.D.,
FIRST ASSISTANT, LABORATORY OF HYGIENE, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

AT the conference held in Berlin in 1884, for the purpose of discussing the cholera-question, it was announced by Koch[1] that he had discovered in the intestinal evacuations of individuals suffering from cholera, a microörganism that he believed to be the cause of the malady. The morphologic, cultural, and chemic characteristics of this organism are as follows: In morphology it is from 0.8 μ to 2 μ long, and from one-sixth to one-third of its length in diameter, that is to say, it is about from one-half to two-thirds of the length of the tubercle-bacillus, but it is thicker, plumper, and slightly curved. Usually this curve is not more marked than that of a comma, though at times it is much more pronounced and may even describe a semicircle. Again, the curve may be double, one comma joining another, with the convexity of their curves pointing in opposite directions, so that an S in produced; most probably, however, this form does not represent a single individual organism, but two that have adhered together, end to end, after division has been completed. In cultures the organism frequently forms long threads. These are not straight, nor are they simply undulating threads, but long, delicate spirals, which in their length and in other respects resemble strongly the spirochæta of relapsing fever. From these appearances this organism cannot be considered to be a true bacillus, but occupies, rather, an intermediate place between the bacilli and the spirilla. It may be that the short comma-forms represent segments of a true spirillum, the normal form of the organism.

They do not form spores, and no reliable evidence has been advanced in support of the opinion that they possess the power of entering into a stage in which their resistance to detrimental agencies is increased.

They are actively motile, especially when in the comma-stage, though the long threads also possess the power of independent motion. When stained by the special method of Loeffler[2] for the demonstration of flagella, they are found to be provided with these organs of locomotion. According to Loeffler, this organism forms one of that group of motile bacteria that are provided with but a single flagellum attached to one of its extremities.

They grow luxuriantly in bouillon, causing a diffuse clouding and the ultimate production of a delicate film upon the surface. On solidified blood-serum their growth is accompanied by slow liquefaction. They develop actively in milk, but do not cause the milk to curdle, nor do they separate the casein as do many other bacteria. The milk appears to remain unchanged. In sterilized milk containing blue-litmus tincture the color is changed to pink in from twenty-four to forty-eight hours at 37° C. On nutrient gelatin the colonies of this organism appear, when quite young, as pale, transparent drops, not perfectly round. They are dentated at the edges and granular in appearance; as the colony increases in size, this granulation becomes more marked, until the colony appears to be made up of a mass of highly refractive points. In this stage it has the appearance of finely broken glass. It causes a liquefaction of the gelatin round about it, and ultimately a funnel-shaped depression results, into the most dependent part of which the colony proper sinks.

The liquefaction of gelatin by the colonies of this organism, when growing on plates, rarely or never extends more than one millimeter beyond the growing colony. It never causes the widespread liquefaction that accompanies the growth of many other organisms, and particularly is this difference seen in two sets of plates made for the comparison of this organism with the somewhat similar organism described by Finkler and Prior.[3] The colonies of this organism on gelatin plates, when of recent growth and very closely packed together, give to the surface of the gelatin, when viewed by reflected light, an appearance very similar to that of a ground-glass surface.

In stab-cultures in gelatin there appears at the top of the needle-track, after from twenty-four to forty-eight hours, at the ordinary temperature of the room, a small funnel-shaped depression. As the growth progresses, liquefaction will be seen to occur at this point. In the center of this depression can readily be distinguished a small, dense, white clump, the colony itself. As growth continues, this depression increases in extent, and ultimately assumes

an appearance that can truly be said to be characteristic of the growth of this organism, for in this respect it is simulated by the growth of no other organism with which we are acquainted. This appearance consists in the apparent sinking of the bottom of the funnel-shaped depression at the top of the needle-track in such a way as to leave a perceptible air-space between the top of the liquid portion and the surface of the gelatin, so that the growth assumes the appearance of being capped at its highest point by a minute air-bubble. It gives the impression not only of the liquefaction of the gelatin having taken place, but also of a coincident evaporation of the fluid from the liquefied area, and a constriction of the superficial opening of the funnel. In stab-cultures in gelatin the liquefaction is much more extensive than that usually seen around colonies on plates. It spreads laterally from the needle-track, and in about a week a large part of the gelatin in the tube may become fluid, and the growth lose its characteristic appearance.

The organism grows well without liquefaction on nutrient agar-agar. The growth, however, is not characteristic, forming simply a grayish-white, moist layer. It grows on potato as a light grayish-brown layer. This occurs, however, only at the temperature of the incubator—37° to 38° C.—owing probably to the acidity of the potato, which is sufficient to prevent its development at the low temperature, but is not sufficient to have this effect where the temperature is more favorable to growth. The temperature which is most favorable for its growth is between 35° and 38° C. It grows well, but more slowly, at 17° C. Under 16° C. no growth is visible.

Koch's experiments led him to conclude that the vitality of the organism is not destroyed by freezing. It is strictly aërobic, its development ceasing if the supply of oxygen is cut off. It does not grow in an atmosphere of carbonic acid. It is, however, not killed by a temporary exposure to carbonic acid, or by absence of oxygen for a limited time, for it readily grows again when placed under favorable conditions. It does not grow in acid media, but does best under neutral or faintly alkaline reaction. Kitasato[4] found that an acid reaction equivalent to from 0.066 to 0.08 per cent. of hydrochloric or nitric acid, at a temperature of from 20° to 22° C., was sufficient to check development.

When grown in Dunham's peptone solution[5] the organism produces indol and, coincidentally, nitrites; so that, by the addition of concentrated sulphuric acid, the rose-color characteristic of the indol reaction is most conspicuously produced. This reaction is to be obtained not only in artificial cultures of the organism, but also in the "rice-water" discharges of patients suffering from Asiatic cholera.

In cultures, the development of this organism reaches its maximum relatively quickly, then remains stationary for a short period, after which degeneration begins. The dying comma-bacilli become altered in appearance and assume the condition known as involution-forms. When in this state they take up coloring reagents very faintly or not at all, and may lose entirely their characteristic shape.

When present with other bacteria, under conditions favorable to growth, the comma-bacilli at first grow much more rapidly than do the others; in twenty-four hours they will often so outnumber the other organisms present that microscopic examination would lead one to think that the material under examination was a pure culture of this organism. This, however, does not last longer than two or three days; they then begin to die, and the other organisms gain the ascendancy. It is not improbable that a similar process occurs in the intestines of those suffering from Asiatic cholera: a rapid multiplication of the comma-bacilli that have gained access to the intestines takes place, which lasts for but a short time, when the comma-bacilli begin to disappear, and after a few days their place is taken by other organisms.

In connection with his experiments upon the poison produced by the cholera-organism, Pfeiffer[6] states that in very young cultures, grown under the access of oxygen, there is present a poisonous body that possesses extraordinarily intense toxic properties. This primary cholera-poison stands in very close relation to the material composing the bodies of the bacteria themselves, and is probably an integral constituent of them. The vitality of the cholera-spirilla can be destroyed by means of chloroform and thymol, and by drying, without apparently any alteration of this poisonous body. Absolute alcohol, concentrated solutions of neutral salts, and a temperature of 100° C. decompose this substance, leaving behind secondary poisons which possess a similar physiologic activity, but only when given in from ten to twenty times the dose necessary to produce the same effects with the primary poison.

Other members of the vibrio family, also, namely, the vibrio Metschnikovi and that of Finkler and Prior, contain closely related poisons.

Experiments upon Animals.—As a result of experiments for the purpose of determining if the disease can be produced in any of the lower animals, it is found that white mice, monkeys, cats, dogs, poultry, and many other animals are not susceptible to the disease by the methods usually employed in inoculation-experiments. When animals are fed on pure cultures of the comma-bacillus no effect is produced, and the organisms cannot be obtained from the stomach or intestines; they are destroyed in the stomach and do not reach the intestines; they are not

demonstrable in the feces of these animals. Intravascular injections of pure cultures into rabbits are followed by a temporary illness, from which the animals usually recover in from two to three days; intraperitoneal injections into white mice are, as a rule, followed by death in from twenty-four to forty-eight hours; the conditions in both instances most probably resulting from the toxic activities of the poisonous products of growth of the organism that are present in the culture employed. None of the lower animals have ever been known to suffer from cholera spontaneously.

The experiments of Nicati and Rietsch,[7] in which the common bile-duct was ligated, and fluid cultures of the organism were injected directly through the walls of the duodenum, demonstrated the fact that the acid reaction of the gastric juice destroyed the cholera-organisms and prevented their access to the small intestine when they had been administered by the mouth; at the same time it was seen that the interference with the flow of bile diminished intestinal peristalsis, and permitted the organisms to remain for a longer time where they had been deposited. By this method Nicati and Rietsch,[7] van Ermengen,[8] Koch,[1] and others were enabled to produce in the animals upon which they operated a condition that was, if not identical, at all events very similar pathologically to that seen in the intestine in subjects dead of the disease.

At a subsequent conference held in Berlin in 1885, Koch[1] described another method by means of which he had been able to obtain a relatively high degree of constancy in all his efforts to produce cholera in lower animals. The method which he employed is as follows: Bearing in mind the point made by Nicati and Rietsch in regard to the reaction of the gastric juice, this reaction was first to be neutralized, by the injection, through a soft catheter passed down the esophagus into the stomach, of 5 c.c. of a 5 per cent. solution of sodium carbonate. Ten or fifteen minutes later this was to be followed by the injection into the stomach (also through a soft catheter) of 10 c.c. of a bouillon-culture of cholera-spirilla. For the purpose of arresting peristalsis and permitting the organisms to remain in the stomach and upper part of the duodenum for as long a time as possible, the animal was to receive, immediately following the injection of the culture, an intra-peritoneal injection, by means of a hypodermatic syringe, of 1 c.c. of tincture of opium for each 200 grams, by weight, of the animal. Shortly after this last injection a deep narcosis sets in and lasts from a half to one hour, after which the animal is again as lively as ever. Of 35 guinea-pigs inoculated in this way by Koch, 30 died of a condition that was, in general, very similar to that seen in Asiatic cholera.

The condition of these animals before death is described as follows: Twenty-four hours after the operation the animal appears sick; there is a loss of appetite, and the animal remains quiet in its cage. On the following day a paralytic condition of the hind extremities appears, which, as the day goes on, becomes more pronounced; the animal lies quite flat upon its abdomen or on its side, with its legs extended; respiration is weak and prolonged, and the pulsations of the heart are hardly perceptible; the head and extremities are cold, and the body temperature is frequently subnormal. The animal usually dies after remaining in this condition for a few hours.

At autopsy the small intestine is found to be deeply injected and filled with a flocculent, colorless fluid. The stomach and intestines do not contain solid masses, but fluid; when diarrhea does not occur, firm scybalæ may be expected in the rectum. Both by microscopic examination and by culture-methods, comma-bacilli are found to be present in the small intestine in pure culture.

From what has already been said, it will be seen that for the diagnosis of Asiatic cholera by bacteriologic methods, it is essential that the evacuations be examined as soon as possible after they have been passed. If the case happens to be a fatal one, running a rapid course, it is not impossible to make a diagnosis upon microscopic examination alone, for under these conditions it is common to find the organisms present in such enormous numbers as to be practically in pure culture.

Weisser and Franck[9] are so firmly convinced of the possibility of an accurate diagnosis being made by microscopic examination alone, in positive cases, that they express themselves in the following terms:

1. In the majority of cases microscopic examination is sufficient for the detection of the presence of the comma-bacillus in the intestinal evacuations of cholera-patients.

2. Even in the most acute cases, running a very rapid course, the comma-bacillus can always be found in the evacuations.

3. In general, the number of cholera-spirilla present is greater the earlier the death occurs; when death is postponed, and the disease continues for a longer period, their number is diminished.

4. Should the patient not die of cholera, but from some other disease, such as typhoid fever, that may be engrafted upon it, the comma-bacilli may disappear entirely from the intestines.

In dejections that are not examined immediately after being passed it is often difficult, because of the large number of other bacteria that may be present, to detect the cholera-organism by microscopic examination. According to Schottelius,[10] it is advan-

tageous in these cases to mix the dejections with about double their volume of slightly alkaline meat-infusion, and to allow them to stand exposed to the air for about twelve hours at a temperature of between 30° and 40° C. There appears at the end of this time, *especially upon the surface of the fluid*, a conspicuous increase in the number of comma-bacilli, and cover-slip preparations, made from the upper layers of the fluid, will reveal an almost pure culture of this organism.

In Asiatic cholera the organisms can also be detected in the vomited matters, though not so regularly as in the intestinal evacuations.

As a rule, bacteriologic examination fails to reveal the presence of the organisms in the blood and internal organs in this disease, though Nicati and Rietsch claim to have obtained them from the common bile-duct in rapidly fatal cases, and in two out of five cases they were present in the gall-bladder. Doyen and Rasstschewsky[11] found them in the liver in pure cultures, and Tizzoni and Cattani[12] in both the blood and gall-bladder.

The cholera-spirillum is a facultative parasite; that is to say, it apparently finds in certain portions of the world, particularly in those countries in which Asiatic cholera is endemic, conditions that are not entirely unfavorable to its development outside of the body. This has been found to be the fact not only by Koch,[1] who detected the presence of the organism in the water-tanks in India, but by many other observers, who have succeeded in demonstrating its growth under conditions not embraced in the ordinary methods that are employed for the cultivation of bacteria.

The results of experiments having for their object the determination of the length of time during which this organism may retain its vitality in water are conspicuous for their irregularity. In the transactions of the congress, in Berlin, for the discussion of the cholera-question, it was stated in regard to this point, that the experiments made with tank-water in India sometimes resulted in the demonstration of the multiplication of the organisms introduced into it, while in other cases these died very quickly.

On February 8, 1884, comma-bacilli were found in the tank at Saheb-Began, in Calcutta, and it was possible to demonstrate them in a living condition up to February 23d.

Koch states that in ordinary spring-water or well-water the organisms retain their vitality for thirty days, whereas in the canal-water (sewage) of Berlin they died after six or seven days; but if this latter be mixed with fecal matters, the organisms retain their vitality for but twenty-seven hours; and in the undiluted contents of cesspools, it is impossible to demonstrate them after twelve hours. In the experiments of Nicati and Rietsch they retained their vitality in sterilized distilled water for twenty days; in Marseilles canal-water (sewage), for thirty-eight days; in sea-water, sixty-four days; in harbor-water, eighty-one days, and in bilge-water, thirty-two days.

In the experiments of Hochstetter, on the other hand, the cholera-spirilla in distilled water died in less than twenty-four hours in five of seven experiments; in one of the two remaining experiments they were alive after a day, and in the other after seven days.

In one experiment with the domestic water-supply of Berlin the organism retained its vitality for 267 days; in another for 382 days, notwithstanding the fact that many other organisms were present at the same time. There is no single ground upon which these variations can be explained, for they depend apparently upon a number of factors, which may act singly or together. For example, in general it may be said that the higher the temperature of the water in which these organisms are present, up to 20° C., the longer do they retain their vitality; the purer the water, that is, the poorer in organic matters, the more quickly do the organisms die, whereas the richer it is in organic matter the longer do they retain their vitality.

Still another point that must be considered in this connection is the antagonistic influences under which these organisms find themselves when placed in water containing organisms that are, so to speak, at home in water—the so-called normal water-bacteria.

In his experiments upon the behavior of micro-organisms in the soil, Carl Fraenkel[13] found that the cholera-spirillum was not markedly susceptible to those deleterious influences that cause the death of a number of other pathogenic organisms. During the months of August, September, and October, cultures of the Asiatic-cholera organism that had been buried in the ground at a depth of three meters retained their vitality. On the other hand, in other months, particularly from April to July, they lost their vitality when buried to the depth of only two meters. At a depth of one and a half meters vitality was not destroyed, and there was a regular development in cultures so placed.

As a result of experiments performed in the Imperial Health Bureau, at Berlin, it was found that the bodies of guinea-pigs that had died of cholera induced by Koch's method of inoculation, contained no living cholera-spirilla when exhumed after having been buried for nineteen days in wooden boxes, or for twelve days in zinc boxes. In a few that had been buried in moist earth, without having been encased in boxes, when exhumed after two or three months, the results of examinations for cholera-spirilla were likewise negative.

Kitasato,[14] in his experiments with the cholera-

organism, found that when mixed with the intestinal evacuations of human beings under ordinary conditions they lost their vitality in from a day and a half to three days. When the evacuations were sterilized before the cultures of the comma-bacillus were mixed with them, the organisms retained their vitality up to from twenty to twenty-five days. He was unable to come to any definite conclusion as to the cause of these phenomena.

It was demonstrated by Hesse[16] and by Celli[17] that many substances commonly employed as food-stuffs offer a favorable nidus upon which the cholera-organism could develop. In his experiments upon its behavior in milk, Kitasato[18] found that at a temperature of 36° C. the cholera-spirillum developed very rapidly during the first three or four hours, and outnumbered the other organisms commonly found in milk. They then diminished in numbers from hour to hour as the acidity of the milk increased, until finally their vitality was lost; at the same time, the common milk-bacteria increased in number. Relatively the same process occurs at a lower temperature, from 22° to 25° C, but the process is slower, the maximum development of the cholera-organisms taking place at about the fifteenth hour, after which time they were overgrown by the ordinary saprophytes present.

From this it would seem that the vitality of the cholera-organism in milk depends largely upon the reaction—the more quickly the milk becomes sour, the more quickly the cholera-organism becomes inert, while the longer the milk retains its neutral, or only very slightly acid reaction, the longer do the cholera-organisms that may be present in it retain their power of multiplication.

In sterilized milk of a neutral or amphoteric reaction, at a temperature of 36° C., the cholera organisms grow, gradually produce an acid reaction, and retain their vitality for about two weeks. At a lower temperature, from 22° to 25° C., they retain their vitality under these conditions for about three weeks or more.

Sterilized milk into which cholera-spirilla have been introduced, when subjected, for five minutes, to a temperature of from 96° to 100° C. is rendered sterile.

According to Laser,[17] the cholera-organism retains its vitality in butter for about seven days; it is therefore possible for the disease to be contracted by the use of butter that has in any way been in contact with cholera-material.

When cultures of the organism are subjected to a temperature of 65° C., all organisms are destroyed in five minutes.

In regard to the antagonism between the cholera-spirillum and other organisms with which it may come in contact, the experiments of Kitasato[18] led him to conclude that no organism has been found which, when growing in the same culture-medium with it, possessed the power of depriving it of its vitality *within a short time*. On the other hand, the experiments showed that there were quite a number of other organisms the development of which was checked, and in some cases the vitality of the organisms was completely destroyed, when growing in the same medium with the cholera-spirillum.

The most conspicuous example of the latter condition is the behavior of the anthrax-bacillus when growing together with the cholera-spirillum. In a relatively short space of time the former loses its vitality.

From this it would appear that the disappearance of the cholera-spirilla from mixed cultures in evacuations in so short a time as has been mentioned, is due more to alterations or unfavorable conditions in the media than to the direct action of the other organisms present.

When completely dried, according to Koch's experiments, cholera-organisms do not retain vitality for longer than twenty-four hours, but by others their vitality is said to be destroyed by an absolute drying of three hours. In the moist condition, as in artificial cultures, their vitality can be retained for many months, though repeated observations lead us to believe that, under these circumstances, their virulence is diminished. According to Kitasato[19] they retain their vitality when smeared upon thin glass cover-slips and kept in the moist chamber for from 85 to 100 days, and for as long as 200 days when deposited upon bits of silk thread.

In the course of his studies upon the destiny of pathogenic microörganisms in the dead body, Von Esmarch[20] found that, when the cadaver of a guinea-pig dead from the introduction of cholera-organisms into the stomach, was immersed in water and decomposition allowed to set in, after eleven days, when decomposition was far advanced, it was impossible to find any living cholera-spirilla by the ordinary plate-methods.

A similar experiment resulted in their disappearance after five days. In another experiment, in which decomposition was allowed to go on without the animal being immersed in water, none could be detected after the fifth day.

Carl Fraenkel[21] has shown that an atmosphere of carbonic acid is directly inhibitory to the development of the cholera-spirillum, and Percy Frankland[22] states that in an atmosphere of this gas it dies in about eight days. In an atmosphere of carbon monoxide its vitality is lost in nine days, and in general the same may be said for it when under the influence of an atmosphere of nitrous oxide gas.

From what has been said we see that the spirillum

of Asiatic cholera, while possessing the power of producing in human beings one of the most rapidly fatal forms of disease with which we are acquainted, is still one of the least resistant of the pathogenic organisms known to us. Under conditions most favorable to its growth, its development is self-limited; to acids, alkalies, disinfectants, and heat it is conspicuously susceptible; but when partly dried upon clothing, food, or other objects, it may retain its vitality for a relatively long period of time, and it is more than probable that it is in this way that the disease is carried from points in which it is epidemic or endemic into localities that are free from the disease.

ORGANISMS WITH WHICH THE SPIRILLUM OF ASIATIC CHOLERA MIGHT BE CONFOUNDED.

In 1885 Finkler and Prior contested the significance of Koch's comma-bacillus in Asiatic cholera; for they claimed to have found it in the dejections of individuals suffering from cholera nostras.

Not only has Koch, but also Van Ermengen and others have satisfactorily demonstrated how significant are the biologic and morphologic differences between the organism found by Finkler and Prior and the Asiatic cholera-organism, and that the opinion of Finkler and Prior is most probably based upon the incompleteness and inaccuracy of their method of experimentation. At a later period Finkler and Prior were themselves compelled to admit that the organism described by them was pathogenic only for cholera nostras.

Subsequently, in 1885, '86, and '87, Franck[23] examined seven cases that clinically presented the condition of cholera nostras; in none of these seven cases was the organism of Finkler and Prior, which they claim to be the cause of the disease, found.

In all cases, the results of bacteriologic examination, in so far as the constant presence of an organism that might stand in causal relation to the disease was concerned, were negative. Only the ordinary intestinal bacteria were found.

The spirillum of Finkler and Prior is thicker and longer than that of Koch; they are thicker at the poles than at the middle, and form, like the comma-bacillus, screw-like, twisted threads. In hanging-drop cultures one sees that this organism is motile. In plate-cultures they form round, isolated colonies. These are darker than the colonies of Koch's spirillum; their surface is neither so glazed, nor conspicuously granular; the edge is regularly circular and not indented. The most conspicuous differential characteristic is that they liquefy the gelatin much more energetically than does the Koch organism, and thereby bring about a diminution in the characteristic outline of the colony. The outer edge of the liquefying zone shows a sharp contour, as does also the organism of Koch.

A plate upon which only the colonies of the bacillus of Finkler and Prior are growing will become completely liquefied in summer at the temperature of the room, in less than forty-eight hours, assuming the appearance of a yellowish-white, semi-fluid mass having a peculiar odor. In stab-cultures at the room temperature, twenty-four hours after the inoculation, liquefaction is noticed about the needle-track; the liquefaction at the upper part of the canal becomes greater and greater, and after three days the entire upper portion of the nutritive gelatin has become converted into a cloudy fluid, whereas, at the lower part of the canal, the liquefaction progresses less rapidly, and the whole mass in the tube now presents an appearance the outline of which has been likened to a single finger of a glove, with the hand of the glove attached.

The bacillus of Finkler and Prior grows upon potato at the ordinary temperature of the room, which is not the case with the comma-bacillus; and after forty-eight hours the surface of the potato is covered with a greenish-yellow deposit. There is nothing specially characteristic about its growth on agar-agar. It liquefies blood-serum.

There is another comma-bacillus which occupies, in its cultural peculiarities, an intermediate place between that of Koch and that of Finkler and Prior. This is the spirillum found by Denecke[24] in old cheese. Under the microscope this bacterium is smaller than Koch's; it is motile; it liquefies gelatin *more* rapidly than Koch's bacillus, and *less* rapidly than that of Finkler and Prior. In stab-cultures one might easily confound it with the organism of Finkler and Prior. Under no circumstances does it grow on potato, and it energetically liquefies blood-serum.

Another comma-bacillus is that described by Miller,[25] obtained from a carious tooth; it has so much the same characteristics as the organism of Finkler and Prior that Miller was induced to consider the two identical.

The introduction of cultures of these organisms into the intestinal canal of animals by the method of Koch resulted as follows: Of fifteen animals treated with the spirillum of Finkler and Prior five died; of fifteen treated with the organism of Denecke three died; and of twenty-one treated with Miller's spirillum only four died. The conditions found at the autopsy were not those of cholera, and it was impossible to obtain any regularity in the results of the experiments.

Another spiral organism that might be confounded with that of Koch is the vibrio Metschnikovi, described by Gamaleia,[26] which he found *post-mortem* in a number of fowls that had died in the poul-

try markets of Odessa. If the description given by Gamaleia is correct, then there should be no difficulty experienced in differentiating these two organisms, for in milk after a few days at 35° C. there is a coagulation, with acid reaction and precipitation of the casein. At 25° C. the vibrio Metschnikovi grows on potato as a pale coffee-colored deposit that is darker in color toward the center of the growth. On agar-agar its growth is rapid, giving rise, after a few days, to a yellowish deposit. In gelatin stab-cultures the growth is more rapid, but very similar to that of the true cholera-spirillum. On gelatin plates there appear usually colonies of different appearance, the one set having many similarities to the organism of Koch, while the others approach very closely the spirillum of Finkler and Prior. Gamaleia states that the vibrio Metschnikovi forms veritable endogenous spores, a point that, if true, serves to differentiate it at once from the organism of Koch, though the statement is not confirmed by others who have worked with cultures of this organism.

In many respects, both morphologic and cultural, this organism is similar to the spirillum of Asiatic cholera, though, from the points cited, it is seen that the former can be differentiated from the latter; moreover, in its relation to animals the vibrio Metschnikovi is evidently a distinct species, for it is highly pathogenic both by subcutaneous and intramuscular inoculation for pigeons, chickens, and guinea-pigs—a property not possessed by the true spirillum of Asiatic cholera.

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[13] *Fraenkel, Carl:* Zeitschrift f. Hygiene, Bd. ii, p. 521.

[14] *Kitasato:* Zeitschrift f. Hygiene, Bd. v, p. 487.

[15] *Hesse:* Zeitschrift f. Hygiene, Bd. v, p. 527.

[16] *Kitasato:* Zeitschrift f. Hygiene, Bd. v, p. 491.

[17] *Laser:* Zeitschrift f. Hygiene, Bd. x, p. 513.

[18] *Kitasato:* Zeitschrift f. Hygiene, Bd. vi, p. 1.

[19] *Kitasato:* Zeitschrift f. Hygiene, Bd. v, p. 134.

[20] *Von Esmarch:* Zeitschrift f. Hygiene, Bd. vii, p. 1.

[21] *Fraenkel, Carl:* Zeitschrift f. Hygiene, Bd. v, p. 332.

[22] *Frankland:* Zeitschrift f. Hygiene, Bd. vi, p. 13.

[23] *Franck:* Zeitschrift f. Hygiene, Bd. iv, p. 207.

[24] *Denecke:* Deutsche med. Wochenschrift, 1885, No. 3.

[25] *Miller:* Deutsche med. Wochenschrift, 1885, No. 9.

[26] *Gamaleia:* Annales de l'Institut Pasteur, 1888, tome ii, p. 482.

[27] *Celli:* Bollettino della R. Accad. Med. di Roma, 1888.

ETIOLOGY AND TREATMENT OF ABORTION.[1]

BY W. REYNOLDS WILSON, M.D.,
OF PHILADELPHIA.

THE causation of abortion depends not upon the hemorrhage into the decidua, which is present, but upon some primary lesion, the result of a pathologic condition in the mother or the child. As a basis of the pathologic changes occurring in abortion we are, in most instances, able to find some histologic lesion. There are cases, however, in which we must fall back upon reflex causes to explain the condition. Such terms as "irritable uterus," "habitual abortion," etc., are used to designate the latter class of cases. These terms are not without their proper use, as every practitioner has met with cases in which no cause, either during pregnancy, at the time of the abortion, or following the abortion, will answer as an explanation of the condition. By a more careful study of these cases we are often able to detect a cause which is acting reflexly, such as irritation of the nipples, chronic congestion from repeated coitus, or mental emotion; or, by internal examination, we find a laceration of the cervix. This last condition may be associated with retraction of one or the other broad ligament, and with pelvic adhesions that hold the uterus out of its proper axis. The uterus thus bound down cannot accommodate the growing fetus, and is excited to contraction—a condition standing thus on the border-line between the reflex and the tangible causes of abortion. The occurrence of the latter set of causes we shall allude to at a later time.

There are a number of causes that act reflexly upon the uterus, the organ itself being unaffected, and therefore the epithet of irritable uterus is inadmissible. In chorea, eclampsia, and excessive vomiting we have the uterus excited to spasmodic action. In all these conditions the state of muscular spasm is capable of producing the result either by forcing the uterus to discharge its contents by the contraction of the diaphragm and the abdominal muscles, by venous stasis interfering with the oxygenation of the fetal blood, or by producing a state of physical exhaustion. The condition in eclampsia, while embracing these factors, presents a still more important element in the causation, namely, the presence of a toxic principle in the blood—urea, acetone, or a combination of poisons.

[1] Read before the Northern Medical Society, May 13, 1892.

The condition of the blood in the infectious diseases may also bring on abortion. This may result from high temperature, as in typhoid fever, or from blood-changes, as in pneumonia. In other words, abortion may result from all those conditions that produce, first, an elevation of temperature; secondly, a condition of hyperemia in the pelvic organs, with the accumulation of carbonic acid; and, thirdly, excessive changes in blood-pressure, resulting in deficient nutrition of the fetus.

Positional disorders and changes in the situation of the uterus by reason of adhesions and exudates play an important rôle in the etiology of abortion. The following notes are from a case in which repeated abortions were referred to the existence of pelvic adhesions binding the uterus downward and drawing it from its proper axis:

H. M. S., aged thirty-six years, was seized with labor-pains on December 24, 1890. The family history, and the personal history up to the date of the first miscarriage, were good. The husband's history was also good. The patient had been married thirteen years, and she had had six miscarriages, all at about the sixth month. The present labor occurred in the beginning of the seventh month; the first stage lasted fourteen hours, the child presenting by the breech, with prolapse of the cord. The child was extracted, and was kept alive for thirty-two hours by means of an Auvard incubator. The uterus was bound by adhesions toward the right. The early history of pelvic trouble causing these adhesions was obscure, although a perimetritis incident to the earliest abortion may account for their existence. In this, as in all of her previous pregnancies, the interference with the development and ascent of the uterus caused the contractions, with the resulting miscarriage.

An examination in the intervals between the pregnancies, with the idea of diagnosticating the precise condition, might throw some light upon the possibility of the existence of a uterus bicornis, one horn of which has remained rudimentary, the other being displaced by pelvic adhesions—a condition that could readily account for the occurrence of repeated abortions.

Retroversions, retroflexions, and prolapse are the chief positional affections of the uterus that interrupt its evolution and interfere with the proper nutrition of the ovum, on account of the endometritis that is secondary to these conditions. Myomata and ovarian tumors, as well as cicatricial stenosis of the vagina, with fixation of the cervix, must also be included among the conditions that produce abortion.

On the side of the child, malformations, such as spina bifida and anencephalus, are in some cases accountable for abortion. The writer presented a case, however, in the *American Journal of Obstetrics* for October, 1891, in which a fetus affected with cystic elephantiasis involving generally the subcutaneous connective-tissue, and associated with hydramnios and beginning myxomatous degeneration of the placenta, was carried to the middle of the eighth month, and lived for thirty minutes after delivery.

Diseases that cause the death of the child are accountable for its premature expulsion. Among these diseases syphilis is the most important—syphilis communicated by the mother or by the father, and acting directly upon the fetal tissues, or interfering with the nutrition of the fetus through the lesions in the placenta and cord. If acting directly upon the fetal tissues, there is produced the well-known picture of congenital hereditary syphilis, namely, ascites and anasarca, the result of chronic, diffuse, interstitial hepatitis, gummata in the liver, spleen, pancreas, kidneys, and lungs, together with the presence of osteo-chondritis at the apophyses and the epiphyses of the long bones, and presenting the distinct yellow line which is so often observed; the lesions in the cord consist in thickening and edema, with increase in the thickness of the intima of the veins and arteries, as a result of which the lumen of the vessels is encroached upon. Torsion of the cord is of frequent occurrence. When the placenta is affected we have the following lesions: According to Winckel, fatty degeneration and thickening of the decidua, small-celled infiltration, infarcts (wedge-shaped, with the base of the wedge directed toward the uterine decidua), and cloudiness of the villi, the nuclei of which are unaffected by staining, the vessels occluded, and the epithelium absent. According to Greene, we have an amyloid degeneration; that is to say, a peculiar chemical change of the ground-substance of the villi and decidua, associated with analogous changes in the amnion and tissue of the cord.

Placenta previa and kidney disease must be included among the causes of abortion.

Looking more carefully into the histologic changes that accompany abortion, we may consider them in the following order:

First: A condition of hydremia of the mucous membrane of the gravid uterus, in which the secretion of a serous fluid, beginning usually not earlier than the third month of pregnancy, causes the premature discharge of the ovum.

Second: A thickening of the decidua, which affects sometimes the whole of the decidua vera, and at other times only a localized area, producing in the latter instance a polypoid hypertrophy. This condition, known as *endometritis decidua chronica*, has been observed in women who, before pregnancy, have suffered from chronic endometritis, of gonorrheal, syphilitic, or simple origin.

Third: Irrespective of the hemorrhage resulting

from the death of the embryo, we may have hemorrhage occurring in the course of the lesion just described, as well as primarily in the decidua, which presents, in such cases, areas of inflammatory change. If the bleeding occurs repeatedly and coagulation takes place, the fibrin with the decidua which has been permeated by the clot forms a mass that has received the designation of fleshy mole. With the dislodgment of such a mass the fetus, in a state of retrograde change, is sometimes discharged; at other times, especially when the hemorrhage has occurred at an early date, it is absorbed.

In the later months of pregnancy the changes confined to the decidua serotina assume distinct importance, as upon these changes depend the function of the placenta. The most important lesion consists in thrombosis of the intervillous sinuses. The minute yellowish-white areas thus formed, distributed in the maternal surface of the placenta and resembling infarcts of the spleen, have by Fehling been designated white infarcts; but, according to Ziegler, their origin is to be attributed to thrombosis. These points of thrombotic origin consist of areas of laminated fibrin that have undergone a hyaline degeneration. Their significance lies in their frequent association with the lesions of syphilis in the mother. They appear, however, in great numbers in the placentæ of women not affected with syphilis, and, according to Fehling, are associated with chronic nephritis. Their origin lies either in an abnormal condition of the blood, or in a pathologic condition of the villi.

In considering the treatment of abortion we shall take up the prophylactic treatment, bearing, as it does, upon the pathologic changes that we have just discussed. We must first combat the general affections that predispose to abortion, such as syphilis, nephritis, and heart-disease; while, in cases of acute infectious disease, we must endeavor to prevent abortion by controlling the symptoms. In cases in which pelvic trouble is present it will be necessary to correct this. Endometritis is the direct cause of abortion in the majority of cases belonging to this class, whether the primary cause be a positional or an inflammatory disorder. In studying the pathology of abortion we have been able to trace the lesions in the decidua to an abnormal condition of the mucous membrane of the uterus before impregnation. The origin of this condition depends, in many cases, upon gonorrheal infection. In the last few years gonorrhea has been recognized as the origin of a large class of tubal affections; its bearing upon the causation of endometritis, predisposing to abortion, is of equal importance.

In threatening abortion, rest and the use of opium, either by enema or suppository, will meet the indications for treatment. The probability of averting the abortion depends upon the degree of dilatation of the os, the amount of hemorrhage, and the presence of uterine contractions. In actual abortion the existence or non-existence of hemorrhage determines the treatment. If the bleeding is moderate and the cervix undergoing dilatation, the treatment should be purely expectant, and ergot should be used in repeated doses as required. If, on the other hand, the bleeding is excessive, the practitioner should be prepared, not for temporizing measures, such as the use of tampons, but for the most active procedures. Those who advocate tamponing would be unwilling to hear of it as a "temporizing measure;" its effectiveness in exciting uterine contractions and furthering dilatation is a strong argument in its favor, but the dangers from the retention of the blood by the tampon and the risk of infection more than counterbalance the advantages of this form of treatment.

When serious hemorrhage has taken place, the more rapidly dilatation is completed, as a means by which the contents of the uterus can be reached and turned out, the more effective the treatment. For this reason we resort to rapid digital dilatation and the removal of the ovum by means of the finger swept around between the placenta and the uterine wall. In the latter months (the fourth or fifth month) pressure over the fundus will often expel the contents of the uterus intact. Specimens of gestation-sacs, made up of the decidua enclosing the fetus floating in the amniotic fluid and surmounted by the cap-shaped placenta, are frequent in every museum. Such specimens stand for the good judgment of the accoucheur, for, if we allow the membranes to remain intact, the ovum is in time expelled complete. If, however, the membranes have been ruptured, and, in the event of hemorrhage, they cannot be detached by the finger, the curette must be used, followed by the careful cleansing of the uterus by intra-uterine douches. Should part of the membranes or placenta be retained, without the presence of hemorrhage or fever, manual or instrumental removal should be avoided, as by the most careful procedures we cannot escape the risk of leaving some shreds within the cavity of the uterus, and, in the use of the curette, of infecting the uterine surface. If decomposition of the retained mass has set in, with the appearance of fever, we should resort to the use of the curette.

In case shreds of decidua are retained and infection from the uterine surface has occurred, leading either to pelvic exudation or acute peritonitis, what should be our line of treatment? In the *American Journal of Obstetrics* for April, 1892, Pryor reports a case in which he had curetted the uterus for the relief of acute peritonitis following abortion. The uterus was curetted and packed with iodoform-

gauze. The peritonitis subsided, the uterus became movable, and the tenderness disappeared. Polk, in discussing this paper, supported the treatment, and alluded to the further procedure of opening the abdomen, if necessary, after curetting and treating the peritonitis by drainage—a procedure reserved, fortunately, for a limited class of cases.

It remains to describe an unusual condition that has been overlooked in the category of sequelæ requiring treatment. In the course of two weeks, or even a longer time, after the removal of the placenta, with the cessation of hemorrhage and the disappearance of all symptoms, the patient is seized suddenly with bearing-down pains and hemorrhage. Examination reveals a polypoid growth protruding through the relaxed cervix. This condition is due to subinvolution of the uterus at the placental site, with the leakage of blood which has become organized. The sinuses remain open, and the congestion increases until some unusual exertion on the part of the patient induces hemorrhage. The treatment consists in the removal of the mass by the finger or by the curette, and the administration of ergot to overcome the subinvolution.

SOME INCIDENTAL PHENOMENA OF THE SHADOW-TEST.[1]

BY SWAN M. BURNETT, M.D., PH. D.,
PROFESSOR OF OPHTHALMOLOGY AND OTOLOGY, GEORGETOWN UNIVERSITY; OPHTHALMIC AND AURAL SURGEON TO THE GARFIELD, PROVIDENCE, AND THE CHILDREN'S HOSPITALS; DIRECTOR OF THE EYE AND EAR CLINIC AT THE EMERGENCY HOSPITAL, WASHINGTON, D. C.

As with all other methods of determining refraction, the shadow-test has been undervalued by some, and, perhaps, overestimated by others; but I think that no one who has used it long, with a knowledge of its underlying principles, can have failed to recognize its great advantage in certain classes of cases, and its assistance, as a control-method, in all. Infallibility, or an accuracy closer, in the majority of instances, than 0.5 D., should not be claimed for it. As I have elsewhere stated,[2] one obstacle to its more general use is the want of a handy method of employing it, a fault that I have endeavored to overcome by using a disc whose periphery is set with a series of lenses that can be brought in rapid succession before the eye to be examined.[3] Though I have found the method generally reliable, and use it, by routine, in every case of refraction that I examine, there are some incidental phenomena that I have observed in a number of cases which seem to be of sufficient importance to have attention more pointedly directed to them than heretofore.

When the refracting media are uniform in curve and transparency, the illuminated area, with its shadowy edge, which moves across the pupillary space, is of an even reddish color, and, in its passage from side to side, through the rotation of the mirror, is unchanged, except sometimes when the faint shadow of a large retinal vessel obtrudes itself. I have found, however, that this illuminated area is by no means constantly uniform. In quite a percentage of cases there is within this space a very appreciable play of shadows, more or less crescentic, which change their position and shape with each change in the position of the mirror, exactly in the same manner as we have it in conical cornea, only, of course, in not so pronounced a degree. These appearances must come necessarily from some obstacle to the regular refraction of the rays, proceeding from the illuminated retinal area, in their passage outward to form the aërial image of this spot at the far-point of the eye. These internal shadows are best observed when the plane mirror is used and the illumination is weak.

Exactly where the defect lies I have not as yet been able to determine. The appearance and movements of the shadows are so like those of conical cornea that one's first thought is naturally toward some change in the corneal curvature. But every case in which the phenomenon was at all pronounced was examined carefully by the ophthalmometer of Javal, the measurements being taken at every five degrees along the principal meridians, from the line of the visual axis to the periphery of the cornea, in the manner described in my paper on the "General Form of the Cornea," etc.,[1] and in only a single instance did the change in the corneal curve deviate from that of corneæ which can be considered normal, sufficiently to account for the phenomena. Neither did the corneal reflex of Placido's disc show any marked change in the size or form of the rings.

I have excluded from this consideration all cases in which even the slightest trace of a corneal or lenticular opacity was discernible by ordinary oblique or direct illumination. In some cases, however, there was a history of a previous inflammation of the eye, and it is possible that an inflammation of the cornea might have healed with a normal surface-curve, but with some permanent change in the density of the tissue beneath, which would not reveal itself by the usual methods of examination as a clearly defined opacity.

[1] Read before the American Ophthalmological Society, at New London, Conn., July 20, 1892.

[2] "Skiascopy, with a Description of an Apparatus for its Ready Employment." Knapp's Archives, No. 2, 1890.

[3] I think it should be stated, in this connection, that the instrument constructed and advertised by Queen & Co., of Philadelphia, as "Würdemann's Skiascope" differs in no essential particular from that exhibited by me at the meeting of this Society in Washington, in 1889. Dr. Würdemann, I am informed, had some made in Vienna, with his name attached, in 1890.

[1] Read at the same meeting of the Ophthalmological Society.

My next thought was that the irregularity might be due to a conicity of the lens, or, at least, an irregular curve, on one or both of its surfaces. Of the existence of such irregularity I have not been able to satisfy myself by the Sanson-Purkinje experiment. However, I think the method is not sufficiently refined to be of any use in determining small irregularities of curve. Then there comes in another possible cause — variations in the density of the lens-tissue. Pronounced opacities in the lens, such as we find in commencing cataract, and particularly when the nucleus is first or most affected, do unquestionably give rise to these shadows, but the instances in which I have found them most pronounced have been in young people in whom there was no reason to suspect any pathologic change in the lens.

Another feature which has shown itself in many of these cases is one that tends to set a limit to the reliability of the test. In a number of instances in which I have observed this phenomenon there has been a want of correspondence between the lens that gave a reversal of the shadow movement and the glass that gave the best visual acuteness. Of this, the following case is an example:

Miss E. F., aged eighteen, has vision in either eye of 5/18 +, and so far as she remembers it has never been any better. The cornea, examined at the visual axis, gave an astigmatism of 0.5, according to the rule. Skiascopy gave a general M. of 1.5 D. As minus glasses of any strength failed to improve vision, she was put under a mydriatic. The shadow-test still gave, with the dilated pupils, a reversal of movement only with — 1 D. at two meters examining distance. Her best vision, however, was obtained with +0.5, 90° L., 100° R., when it was barely 5/9. The crescentic unstable shadow within the illuminated area was very marked, and in the direct ophthalmoscopic examination there was observed that changing in the distinctness of a retinal vessel along its course, or with a shifting of the mirror, which is so characteristic of conical cornea. An examination with Placido's disc did not reveal any noticeable change in the form or course of the rings. The cornea was measured in its principal meridians at intervals of 5° from the visual axis up to 20° on each side. The measurements of the left cornea expressed in diopters of refraction are given in the following table:

Degree.	In.	Out.	Down.	Up.
0	44	44	43.5	43.5
5	44	44	43.5	43.5
10	43.5	44	43.5	43.5
15	43	44	43.5	43.5
20	42.5	43.5	43.5	43.5

From these measurements it will be seen that the corneal curve is much more regular than the average as exhibited in the table in my paper on the "General Form of the Human Cornea."

Mr. O R., aged eighteen years, has in R. vision 5/18 with + 2, 100°. Skiascopy, on repeated examination, gives invariably +1.75, 180° and +4, 90° in the same eye. The ophthalmometer reveals 1.25 D. of astigmatism, according to the rule, at the visual axis.

The general corneal curve is not abnormal. The unstable shadows within the illuminated area are very marked. He said he had had granular lids when he was younger, but there are no corneal scars visible by the usual methods of examination.

Mrs. S. R., aged thirty-three years. V = 5/6, and no glass improves. Skiascopy gives 1.75. Corneal curve regular and not abnormal. Shadows quite pronounced.

Miss E. M., aged twenty-three. V = 5/6. No glass improves. Internal shadows very pronounced. The shadowy edge in skiascopy was so ill-defined that nothing definite could be learned from the movements. Corneal curve normal.

Mrs. H. B. W., aged thirty. Under homatropine R., V = 5/12, with + 0.75 ⊂ + 1, 165°; ophthalmometer at visual axis 40 D., meridian at 30°, 39.5 D., meridian at 120°. She had inflammation of the eyes in childhood, but there are no corneal scars visible. The corneal curve is normal, except at the upper inner portion, where it becomes slightly irregular. The internal shadows are very marked. In the other, L., eye, the shadows are less marked, and the corneal curve is normal in both principal meridians. V = 5/6.

In some cases in which the internal shadows were clearly discernible the visual acuteness was normal, but in none have I seen it exceed 5/5. In no case, however, in which it was at all pronounced, have I seen the acuteness of vision come up to the standard.

It would seem, therefore, from this, that the shadow-test is to be relied upon implicitly only when there is perfect regularity in the refraction, and, as a converse corollary to this, the method is one of great value in detecting such irregularities when they are not otherwise determinable.

CLINICAL MEMORANDA.

A CASE OF AKROMEGALY.[1]

BY CHARLES W. DULLES, M.D.,
OF PHILADELPHIA.

THE subject of akromegaly was brought before the College last January and April, when Dr. F. A. Packard read a paper on this subject and a disease that simulates it (osteo-arthropathie hypertrophiante pneumique — Marie), and Dr. Dercum exhibited two patients with akromegaly. Since that time, to confirm the commonly entertained opinion that an unusual occurrence is likely to be soon followed by others of the same sort, a case of akromegaly has unexpectedly presented itself to me.

On July 7th, in the house of a Syrian client, I was asked

[1] Read before the College of Physicians of Philadelphia, October 5, 1892.

to examine and treat a friend who was newly arrived from Constantinople. The following account describes what I found:

A. P., born in Turkey in Asia, twenty-seven years of age, unmarried; height, five feet seven and a half inches; weight, about 160 pounds; has a good family and personal history, having lost two brothers in infancy and having five now living and healthy, and both parents living. Six years ago he was in this country, doing business in Chicago. As the accompanying photograph (Fig. 1), taken at that time, shows, he was then a well-

FIG. 1.

formed and healthy young man. After this he went to Constantinople to carry on the Oriental part of a business that consisted in buying rugs, etc., and sending them to this country to be sold. Owing to involvement in the affairs of those for whom he acted, he was accused of violating the laws of the Ottoman Empire, and

FIG. 2.

on March 4, 1890, was cast into a Turkish prison, where he remained for about eighteen months—until August 27, 1891. On leaving the prison he had no business, and was under a cloud of distrust and depression until he left Turkey to come to America, where he arrived fifteen days before I saw him.

While he was in prison his hands and feet began to enlarge, so that everybody said that he was getting fat, and his shoes (sandals) became too small for him. About six months ago, he says,[1] he began to be oppressed with drowsiness, especially after meals, when he could hardly speak, but had to lie down and take a nap. For about three months he has had profuse sweats.

When I first saw him he presented an appearance of melancholy, and a face that at once suggested to my mind the condition described by Marie as "akromegaly," and what appeared in the patients exhibited to the College last April by Dr. Dercum. The second photograph (Fig. 2) brings out the peculiar, massive, leonine countenance, the broad forehead, the wide malar eminences, the large mouth, the broad lower jaw, the large chin, the thick lips, the transverse wrinkles of the forehead, which make up the facial picture of akromegaly, and which are in marked contrast to the face in the photograph taken six years ago. Figure 3 shows the

FIG. 3.

feet. In addition to what the photographs show, it may be stated that there is lateral projection of the rami of the jaw, which is also enlarged, especially in the transverse direction. The form of enlargement generally seen in akromegaly seems to be an increase in the perpendicular and antero-posterior measurements, so that the teeth of the lower jaw overlap those of the upper, and the face is of an oval cast. In the present instance the lower jaw seems to be enlarged, in common with the whole of the bones of the face, except that its breadth is disproportionate. Standing behind the patient at a distance of a few feet, both rami are plainly seen extending beyond the lines of the neck. This is not the case in normally formed individuals, in whom the rami of the jaws are not visible, or only barely so, when looked at from behind the subject. The wideness of the lower jaw is conspicuous on putting the fingers into the mouth and passing them between the upper maxilla and the ramus of the lower jaw, in which situation the coronoid process can be plainly felt quite outside of the superior maxilla. From the outside the articular process of the lower jaw can be seen and felt through the auditory meatus, sliding far forward when the mouth is opened, and moving back as it is closed. The

[1] The periods are not quite trustworthy because the patient does not seem to remember dates accurately.

lateral enlargement of the lower jaw caused the lobes of the ears to protrude and the lower part of the ear (tragus and antitragus) to stand further from the middle line than the upper parts of the concha. The teeth of the lower jaw are somewhat separated, but they fall within the line of the upper teeth.

The hands and feet are characteristic. The former are large, and have the "sausage-shaped" fingers described by several writers. The feet are very large, and have the fleshy pad along the outer side, which is spoken of as peculiar to this disorder. There is also a thick pad under the os calcis and somewhat in advance of it on the sole of the foot.

A careful physical examination did not disclose any evidence of organic lesion of any of the thoracic or abdominal viscera. The urine presented no peculiarities on chemic and microscopic investigation. The eyes were examined by Dr. George E. de Schweinitz, whose friendly interest in the case was increased by the fact that he has already examined the eyes of other persons suffering with akromegaly.

Dr. de Schweinitz reports his findings as follows:

"The optic disc of the right eye is irregularly oval, of normal color, having at its nasal side a slight crescent. The fiber-layer of the retina in the neighborhood of the optic papilla is slightly hazy. There is a faint general absorption of the pigment-epithelium. The central vessels are normal in size and carry naturally-colored blood.

"The optic disc of the left eye is a vertical oval; its nasal side is bounded by a pigment-line and its temporal side by a sharply marked greenish border. Otherwise the conditions are the same as in the right eye.

"In the right eye there is compound myopic astigmatism; 1 D. of corneal astigmatism with its axis horizontal. In the left eye there is simple myopic astigmatism; 2.50 D. with its axis at 15. With correction of the refractive anomaly:

O. D. — 2 ⊃ 1 cyl. ax. H. 6/IX.
O. S. — 2.50 cyl. ax. 15 6/IX.

"The pupils are round, equal in size, and react to the changes of light and shade, convergence, and accommodation. The pupillary reflex is more marked when a beam of light is thrown upon the right side of each retina than when thrown upon the left, but the hemiopic pupillary inaction (Wernicke's symptom) is not present.

"There is no paralysis of any external ocular muscle. The fusion power is good, and there is esophoria (insufficiency of the external recti) of 2 degrees.

"There is *typical left lateral hemianopsia*, with great contraction of the preserved field of vision, the contraction being the greater upon the right side. The dividing line between the dark field and the preserved field passes slightly in advance of the fixation-point. The color perception is normal in the central area, and there is a normal sequence in the appreciation of the colors in the area of preserved vision.

"The interesting feature of this case, so far as the ocular symptoms are concerned, is the presence of left lateral hemianopsia, a hemianopsia, moreover, that is probably due to a lesion back of the primary optic centers, inasmuch as there is preservation of the function of the sensori-motor arc of the pupil and the absence of Wernicke's symptom. The lesion would seem to be located in some portion of the visual tract posterior to the centers just named. Ordinarily in hemianopsia, when there is concentric restriction of the remaining half-fields, this is greatest in the eye opposite to the lesion. In the present instance precisely the contrary condition obtains, the greatest restriction being found upon the right side, while the character of the hemianopsia (left lateral) shows that the lesion that creates it must be upon the right side of the brain. Independent of an organic cerebral lesion, it is perfectly possible that a hemianopsia might be present under the influence of hysterical manifestations. A number of such cases have been reported. In several of the cases of recorded akromegaly, bi-temporal hemianopsia has been present. This, then, is peculiar in being an example of left lateral hemianopsia associated with this affection. It is quite possible that it is purely an association, and has nothing to do with the disease itself."

From this report it will be seen that the patient has a form of hemianopsia that is peculiar, in that it is homonymous, whereas in akromegaly the hemianopsia is usually bi-temporal.

Taking the picture of akromegaly drawn by Marie, we find this man's case to resemble it, in that there have been depression of spirits, profuse sweating, intense thirst, voracious appetite, great lassitude and drowsiness, especially at and after meals, severe and protracted headaches and marked melancholy of disposition, together with the enlargement of hands, feet, and face that are considered to be peculiar to this curious ailment.

Akromegaly is by no means as rare a disorder as might be supposed from the fact that only a few cases have come to the notice of medical men in this country. The often-quoted essay of Dr. Pierre Marie and of Dr. Souza-Leite (London, New Sydenham Society, 1891) contains brief accounts of forty-eight cases gathered from various authors, the earliest being that of the French surgeon Saucerotte, published 116 years ago (1776), and Dr. O. T. Osborne, of New Haven, in an interesting report of a case he had studied (*Amer. Journ. of the Med. Sciences*, June, 1892), speaks of it as the eighth case reported in the United States.

The reasons for considering this a special disorder, and the differences between it and osteitis deformans and leontiasis ossea, are fully discussed by Marie and his pupil Souza-Leite, and will, I think, satisfy any candid reader. According to Marie, the peculiarity of akromegaly consists in a marked enlargement of the bones and of the overlying tissues in the hands and feet, and also in the face, while the bones of the skull and of the trunk are usually unaffected. The enlargement of the bones causes a typical appearance of the face and of the extremities. The visible changes seem in many cases to be the consequence of profound distress or depression, and they are accompanied by lethargy of mind or even melancholy, with drowsiness, headache, extreme thirst, and sweating. In a number of cases hemianopsia has been observed. This curious manifestation should be looked for in every case until enough cases have been investigated to establish the importance to be attached to its presence as a symptom, and the exact form of it. As already stated, the case that I have described presents a form of hemianopsia which differs from that

which has heretofore been described. The case differs also in the mode of enlargement of the lower jaw, and these very differences make it the more desirable, I think, to put the case on record; for the literature of the subject is still very restricted, and it may be that with a larger material for study, there may be some modification of our ideas as to what is essential to the disorder.

An interesting contribution to this literature is an essay[1] supplied by Professor Mosler to that remarkable monument in honor of Virchow's semi-centennial celebration, the *Internationale Beiträge zur wissenshaftlichen Medecin.*

The patient whose case I have described was sent by me to Dr. Packard and to Dr. de Schweinitz for examination, and would be before you to-night but that he wearied of treatment (in a hospital) and left the city.

The treatment to which the patient was subjected was directed chiefly to the digestive tract, which was much out of order. An obstinate constipation was broken up; a suspicion of lumbricoids (a very common affliction of Turks and Syrians) was followed up until it proved ungrounded, salol and phenacetin were given for headache, and strychnine was given as a general and nerve tonic. During the month in which the man was under my care he improved in some respects; but the improvement was solely in regard to the state of his digestive apparatus and the state of his mind. At times he acquired a certain degree of cheerfulness, but this did not last long. On leaving the city for a short summer holiday I had the patient admitted to a hospital, and on my return I found that he had decided to leave it, and that he had also left the city.

A CASE OF AKROMEGALY.[2]

BY SOLOMON SOLIS-COHEN, M.D.,
PROFESSOR OF CLINICAL MEDICINE AND APPLIED THERAPEUTICS IN THE PHILADELPHIA POLYCLINIC; ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL, ETC.

THE case of akromegaly herewith reported I met with accidentally. The subject is not aware that he has any disease, and while he has kindly given me permission to publish his measurements and photograph, he has stipulated that the face should be rendered unrecognizable. This has been skilfully accomplished by retouching the photographs prior to reproduction. Untouched photographs are presented for the information of the Fellows of the College. I saw the man attempting to engage in athletic sport, and was amused by the way in which the big, burly fellow was literally played with by a much smaller man. He is a native American, and born of native-American parents, of English stock. He is six feet two and a half inches in height, and apparently of great muscular development. At the age of sixteen years he weighed one hundred and eighty pounds. His present weight, at the age of twenty-five years, is two hundred and thirty-eight pounds. Up to four years ago he was a blacksmith, and was then able to wield a thirty-pound sledge. Now he cannot lift much weight, and cannot vie with smaller men in athletic exercises of any kind. He is clumsy and sluggish in movement, and although he can run long distances (four miles) without becoming "winded," he is quite slow. He has not spontaneous or intense headache, though headache may be brought on by close study; occasionally he has confusion of ideas. He claims to have a remarkable memory for facts in history and literary quotations, but he finds difficulty with mathematics or other studies requiring deep thought. This is not necessarily abnormal. He has periods of drowsiness. His appetite is exaggerated. He has not noticed excessive thirst or polyuria. A single examination of the urine failed to disclose the presence of albumin, sugar, or tube-casts.

The thickening and dumpiness of the fingers are quite characteristic. The hands (Fig. 1) are enlarged laterally

FIG. 1.

rather than longitudinally, having a characteristic spade-shape. The skin is thick and tough, and the fine lines almost obliterated, while the main furrows are coarse and deep. The segmentation of the fingers is thus quite marked in the photograph. The nails are short and broad, not striated. The grasp is not strong. I was able to endure without wincing his greatest pressure upon my own hand.

His feet are broad, flat, large and fleshy, and he has had to increase the size of his shoes, more particularly in breadth, within two years.

In two years the size of his hat-band has twice been increased, from six and three-quarters to seven, and now to seven and a half. His nose and ears have been large since boyhood, but his nose has lately much increased in size. Three years ago he first noticed the increase in the size of other features and a changed expression of

[1] Ueber die sogenannte Akromegalie (Pachyacrie).

[2] Read before the College of Physicians of Philadelphia, October 5, 1892.

his face, and at his last vacation his family noticed that in the nine months of his absence from home his physiognomy had altered considerably. At the age of sixteen years he thinks that he was as tall as he is at present.

His father and brothers are tall men, but their noses and hands, the man distinctly states, are unlike his. They do not stoop. Very noticeable in his attitude is his stoop forward—the cervico-dorsal kyphosis, with a tendency to forward thrust of the head (Fig. 2). This

FIG. 2.

is likewise shown negatively in a photograph (Fig. 3) by the manner in which he has thrown the trunk backward from the waist in order to get the head into a vertical position. The varicose condition of the veins of his legs also attracted attention. There is a slight paunching of the abdomen. The nose is large, thick, characteristic. The patient states that it is "growing." The superciliary ridges are prominent, the frontal sinuses much enlarged, giving a characteristic forehead, as is well shown in the profile (Fig. 3); the malar bones are enlarged, projecting laterally, so that the outline of the face is the typical lengthened ellipse of akromegaly.

The ears are large, standing out at right angles with the head, and the cartilages are thickened almost to rigidity. The lips are thick and the lower lip overhangs the chin. The tongue is broad, thick, deeply furrowed. The lower teeth do not project beyond the plane of the upper, although the chin is much enlarged vertically. The scapulæ are enormous, and the acromion and coracoid processes can be easily demonstrated, while the distance between them seems to be quite great. The sternal extremities of the clavicles stand out prominently as knobs. The sternum is unusually long, and the xiphoid process is apparently ossified.

The thyroid cartilage is large, thick, and gristly; the cricoid is apparently ossified; internally the larynx is large, but presents no abnormality. Although the external nose is immense, the nasal chambers do not appear to quite correspond in size, but I did not make accurate measurements. The thyroid gland was not demonstrable, although careful search was made for it by Dr. Franklin H. Hooper, of Boston, and myself. Dulness on percussion over the upper portion of the sternum gives some color to the theory that there is a persistent thymus in some of these cases.

The thoracic and pulmonary development is remarkable. The man has an expansion of more than six inches, and the chest-sounds are perfect both on percussion and on auscultation. The heart is apparently proportionate in size to the frame. No lesion was detected.

One feature present that I have not seen mentioned in connection with these cases is a peculiarity of the olecranon and olecranon fossa. The former is comparatively small, the latter apparently much deeper than normal. Hyper-extension of the arm could be readily produced. The photographs show this, and also a

FIG. 3.

similar phenomenon at the knees. (Fig. 3.) The patellæ readily slip out of place, and the man has been laid up three times on account of luxation of the patella.

The rough examination that I was able to make detected no lesion of the eye. I did not have an opportunity to have an ophthalmoscopic examination made.

The photographs do not adequately represent the case, but they are, I think, sufficient to verify my descriptions. The case is interesting in demonstrating that akromegaly is not so rare as one might be inclined to imagine. The man is young, and may be expected to develop other symptoms, while the present conditions will probably become more marked.

A CASE OF AKROMEGALY.

BY H. F. HARRIS, M.D.,
OF ATLANTA, GA.

THE patient was first seen by me a short time before death, which occurred as the immediate result of an attack of influenza. At the time of my visit it was impossible to obtain an accurate history of her previous disease, as she was extremely ill, and the distress of the family such that only the following somewhat imperfect details were obtained:

She was a married lady, fifty-three years of age; a native of Georgia. The family history was good. She had five children, all of whom possess a very unusual degree of intelligence, the youngest being now ten years of age. Up to about twenty years ago she had always been in perfect health, but at that time she began to have attacks of neuralgia, sometimes occurring in the head and face, but often also in the limbs; the intervals between the attacks progressively decreased, so that ultimately she was the victim of most agonizing pain, scarcely without cessation, and which successively resisted all the means devised for its relief. This condition continued up to about thirteen years ago, at which time she began gradually to grow better, and, finally, with the exception of an occasionally mild attack, she completely recovered.

Simultaneously, however, with this improvement was first noticed the beginning of those changes in her face and extremities that have since gradually but steadily increased, until they became characteristic. The changes referred to were a slow growth of the bones and cartilages of the face, neck, hands, and feet, an increase of the soft tissues, and probably a thickening of the skin covering these parts. Her mind also became gradually enfeebled, the will-power and memory having perhaps suffered most. Formerly a very vigorous woman, she grew year by year less so; became dull and apathetic; tired easily, and during the last two or three years she has passed by far the greater portion of her time in bed. For six or eight years she had a "goiter" on the right side of her neck. She had been unable to see objects on her left side for about the same length of time.

When I first saw the patient she was suffering with the symptoms of influenza; there were pains in the head, back, and limbs; the respiration and circulation were somewhat increased, and a moderate amount of pyrexia existed; very great general depression was evident.

A chloroform-like odor could be easily detected in the vicinity of the patient. Physical examination failed to reveal any abnormality in either the heart or lungs; no area of dulness could be found in the region of the sternum. Neither hepatic nor splenic dulness extended below the costal margins. A specimen of the urine for examination could not be obtained. The voice was decidedly coarse; the speech was slow, thick, and often hesitating. Though inspiration was easy, there was a decided laryngeal obstruction to the return of the air, expiration being prolonged and accompanied by a loud blowing sound, proceeding from the region mentioned.

Nothing unusual in the proportions of the cranium was observed, except the prominence of the frontal eminences, which, however, were not believed to have increased in size. The hair was slightly tinged with gray, but appeared well nourished. The ears were not thickened, but stood out prominently from the head, forming almost right angles with it. The eyes were prominent; neither the lids nor the eyelashes presented any abnormalities.

Below the eyes the face was very peculiar. The nose was slightly aquiline, drawn strongly to the right, and enormously increased in size: beginning a short distance below the articulation of the frontal with the nasal bones, the nose began suddenly to expand, and from this point to the extremity it progressively increased in all its dimensions. This increase was due to hypertrophy of the bones, cartilages, and soft parts. The mouth was large, the lips thickened. The skin was of a dirty, faintly-yellowish hue, finely wrinkled over the entire face, and seemed thickened. Although it may have existed to a limited degree, there was no very obvious enlargement of either the malar or superior maxillary bones. The peculiarity about this very strange face, however, that most attracted the attention, was the changed outline, great length and hypertrophy of the inferior maxillary bone; its angle was obliterated to such an extent that the bone formed almost a perfect arc of a circle; its length was out of all proportion to the other dimensions of the face, and caused its alveolus to project far in front of that of the superior maxillary; the width and thickness of the bone were, without doubt, much increased. The tongue almost filled the entire cavity of the mouth, being apparently in width and thickness double its normal size, but little, if any, elongated; the mucous membrane on its dorsal aspect presented numerous deep furrows that crossed each other at short intervals. The teeth were gone. The alveoli, so far as could be ascertained, differed but little from those seen in health under similar circumstances.

The skin of the neck resembled closely that of the face; the deeper soft tissues were hypertrophied. The thyroid gland on the right side was enlarged, forming a tumor of about an inch in diameter; the isthmus and left lobe could not be felt. The thyroid and cricoid cartilages were much enlarged. The hands, and especially the fingers, were greatly altered. The skin here, as over the other affected areas, was wrinkled and seemingly hypertrophied; it was quite loose. The finger-nails were much split longitudinally; they were very short, but somewhat wider than normal. The subcutaneous soft tissues were hypertrophied. The bones—and especially was this true of the phalanges—were greatly increased in width, but were not altered in either of their other dimensions. What has been said of the hands and fingers applies equally to the feet and toes—the changes being identical.

The wrists and ankles were perhaps somewhat broader than normal. The skin for some distance up the forearms and legs seemed thickened. There were no further manifest abnormalities of the limbs.

I was unable to make a thorough examination of the trunk, but, so far as could be seen, no abnormalities were observed, with the exception of a pronounced anterior curvature of the spine in the upper dorsal region, and also a right lateral curvature affecting the dorsal and lower cervical vertebræ.

Notwithstanding the fact that this case presents some

unusual features—among which, as most important, may be mentioned the age at which the onset of the disease occurred and the unquestionable continuance of menstruation—after a careful consideration of the history and symptoms, but little doubt can remain as to the correctness of the diagnosis.

Unfortunately it was impossible to complete the record of the case with the results of a post-mortem.

The following measurements were made after death, which occurred January 6, 1892:

Cephalic extremity.

	Centimeters.
Length from top of forehead to tip of chin	21.9
Extreme width of face	12.7
From meatus auditorius to edge of the nasal orifice, right	12.1
From meatus auditorius to edge of the nasal orifice, left	11.4
From meatus auditorius to the center of the nasal bones between eyes, right	14.8
From meatus auditorius to the center of the nasal bones between eyes, left	15.3
Breadth of nasal bones between canthi	1.0
Breadth of nasal bones at bridge	1.6
Extreme width of the alæ nasi	2.7
Length of nose	7.6
From tip of nose to lip	3.5
Thickness of lips	2.2
From the nose to edge of upper lip at mouth	1.8
From edge of lower lip at the mouth to the chin	4.8
Width of mouth	7.0
Length of inferior maxillæ from angle to symphysis, right	10.2
Length of inferior maxillæ from angle to symphysis, left	10.5
Length of each ear	6.8
Circumference of neck at hyoid bone	34.0
Extreme width of thyroid cartilage	5.4

Trunk.

	Centimeters.
Length of clavicles	17.9
Breadth of clavicle at sternum, right	2.0
Breadth of clavicle at sternum, left	2.4

Superior extremities.

	Centimeters.
Length of arms, right	35.2
Length of arms, left	35.3
Circumference of arms at middle of biceps	22.6
Length of each radius is	24.0
Greatest circumference of forearms	24.0
Circumference of wrists	17.8
Length of hands from the carpo-metacarpal articulation to end of middle fingers, each	17.2
Circumference of metacarpal bones at thumb	22.1
Circumference of hand, without the thumb, at head of the metacarpal bones	21.8
Length of middle fingers, dorsal surface	10.8
Length of ring finger, dorsal aspect	10.5
Length of little fingers, dorsal aspect	8.9
Circumferences—	
thumb, first phalanx, right	7.0
thumb, first phalanx, left	7.0
" second phalanx, right	7.3
" second phalanx, left	7.3
index finger, first phalanx, right	7.3
index finger, first phalanx, left	7.0
" second phalanx, right	6.3
" second phalanx, left	5.9
" third phalanx, right	5.6
" third phalanx, left	5.3
middle finger, first phalanx, right	7.3
middle finger, first phalanx, left	7.0
" second phalanx, right	6.4
" second phalanx, left	5.9
" third phalanx, right	5.9
" third phalanx, left	5.3
Greatest thickness of hand	3.7
Length of nails, thumbs	0.9
Width of nails, thumbs	1.5
Length of nails, middle fingers	0.9
Width of nails, middle fingers	1.2
Length of nails, little fingers	0.5
Width of nails, little fingers	1.0

Inferior extremities.

	Centimeters.
Length of thighs	47.2
Circumference of thighs	45.8
Diameter of patella, vertical	6.6
Diameter of patella, transverse	7.5
Length of legs	40.8
Circumference of knees	36.1
Circumference of legs at middle of calf	29.6
Circumference above internal malleolus	21.6
Greatest circumference of foot	25.6
Greatest width of foot	9.5
Length of plantar surface of foot	21.0
Length of great toes, dorsal surface	6.3
Length of second toe, dorsal aspect	5.6
Length of little toe, dorsal aspect	5.0
Length of nails, great toe	0.9
Width of nails, great toe	1.8
Length of nails, second toe	0.3
Width of nails, second toe	1.2

MEDICAL PROGRESS.

A New Method of Circular Enterorrhaphy.—As the result of experiments upon dogs carried on during a period of a year and a half, HARRIS (*Chicago Medical Recorder*, vol. iii, No. 7, p. 523) proposes the following method of circular or end-to-end enterorrhaphy. A loop of bowel is drawn out of as small an opening as possible and protected by sterilized gauze, while its direction is determined by placing it in the longitudinal axis of the body, with the mesentery made tense. The fingers are then passed down on one side; if they enter the corresponding side of the abdomen, the relations of the bowel are normal; if the fingers enter the opposite side of the abdomen, the mesentery is twisted and the relations of the bowel are reversed. The loop is gently stripped of its contents and light elastic or gauze ligatures applied at two points, between which the bowel is divided transversely, the mesentery being preserved close up to the edge. The distal portion of the bowel is denuded of its mucous membrane for a distance of from a half to three-quarters of an inch by scraping with a sharp curette. Now the proximal portion of the bowel is invaginated into the distal portion. A needle threaded with silk is made to transfix the thickness of the lower or denuded portion of the bowel just to one side of the mesentery, and at the internal limit of the denudation. The needle is not drawn entirely through the wall of the intestine, but only until the point projects from the caliber of the bowel a little beyond its free edge. The point of the needle is made to pick up a bit of the other portion of the bowel, transversely, just to one side of the mesentery and close to its edge. By drawing the needle back a little and using it as lever, by turning it around its point of transfixion in the lower portion, the upper portion on this side will be invaginated into the lower portion for the extent of the denuded surface. The point of the needle is then pushed on through the lower portion from within outward a short distance in a line

transversely from its point of entrance, where the needle is left temporarily, transfixing the bowel and holding that part of the upper portion invaginated. The same process is repeated with a second needle at a corresponding point of the bowel on the opposite side of the mesentery, while a third needle is used similarly at the part of the bowel opposite to the mesenteric attachment. In case the caliber of the bowel is very large, as, for instance, in the colon, more than three needles may be used. The needles may now be successively drawn through and the sutures tied, thereby permanently fixing the invaginated extremity to the internal limit of the denudation, or if the bowel is large and rather flabby, the needles may be allowed to remain in until all the suturing has been done, so as to give firmness and stability to the parts by keeping the bowel dilated, thus facilitating the rapidity of suturing. The exposed portion of the bowel is attached all around to the invaginated part by an interrupted suture taken transversely, care being taken not to penetrate the lumen of the bowel. Two or three sutures are then taken on either side of the mesentery, when the operation is completed and the loop returned. There will be two rows of sutures around the bowel, one at either extremity of the divided bowel, thus permanently keeping the apposed surfaces in accurate approximation, independently of the varying caliber of the bowel. While it is perhaps more desirable to invaginate the upper into the lower portion of the bowel there is no absolute necessity for doing so.

Twenty-five Cases of Extirpation of the Uterus for Carcinoma.—At the recent meeting of the American Association of Obstetricians and Gynecologists, Dr. Charles A. L. Reed, of Cincinnati, presented a report of twenty-five cases of complete vaginal extirpation of the uterus for carcinoma with only two primary deaths—one from shock and one from iodoform-poisoning. Of the twenty-five operated upon, but fourteen were of more than two years' standing, and hence were all that could be discussed with reference to their ultimate results. These fourteen were divisible into two classes of seven each, viz., those in which the disease had existed for more than six months, and those in which it had existed for less than six months before the operation. Of the first class, all were dead; of the second class only one had died. One of the recoveries was of more than five years' duration. The conclusion from these figures is that cases of carcinoma of the uterus ought to be remanded for operation as soon as diagnosticated. Dr. Reed considers total extirpation as the only operation to be advised or practised in these cases, the primary mortality from which, in experienced hands, varies from 5 to 8 per cent.

THERAPEUTIC NOTES.

The Treatment of Malignant Neoplasms.—SPRONK (*Allg. Med. Central. Zeitung*, No. 65) has treated eight cases of sarcoma and seventeen cases of carcinoma by means of injections of from a minim and a half to fifteen minims of sterilized cultures of streptococci. The injections were made at points remote from the new-growth, and preferably in the gluteal region. Often as early as two or three hours after the injection there was complaint of sharp pain, particularly in the primary tumor, disappearing in the course of twenty-four hours. The neoplasms became more sensitive to pressure, redder and warmer, and at the same time somewhat swollen. An injection of a definite amount was invariably followed by fever; the temperature began to rise four or five hours after the injection, and there was complaint of languor, headache, and malaise; the temperature never rose above 103.1°, and, even after large doses, returned to the normal in the course of twelve hours. A tolerance to the remedy was acquired, for, after a certain time, both local and general reaction failed to appear. The subcutaneous tissues in the situation of the injections at first became red and swollen, but subsequently presented no reaction. The results of the treatment were variable. In most cases the tumors continued to grow, although the rapidity of growth was often less than it had been. At times there was a cessation of growth. Some of the tumors diminished in size. Some disappeared, but recurred. In no case did total absorption take place. In spite of the continuance of treatment the tumors again began to grow, creating an impression that the tissue of the neoplasm had become tolerant of the injected substances. Better results were obtained in the cases of sarcoma than in those of carcinoma.—*Wiener med. Presse*, 1892, No. 39, p. 1555.

For Rheumatic Iritis.—DEHENNE (*L'Union Méd.*, No. 107, p. 383) recommends that about every hour hot water be applied to the eyes for five minutes by means of absorbent cotton. Ten grains of sodium salicylate should be given three times a day; or, four grains of quinine sulphate three times a day; or,

℞.—Alcohol.	. . . . .	♏xx.
Tinct. colchici	. . . .	♏xl.
Syrupi simplicis	. . . .	f ʒij.
Aquæ destillat.	. . . .	f ʒj.—M.

S.—A tablespoonful, or two tablespoonfuls, at bedtime.

If the inflammation is active, and sleeplessness is present, several leeches may be applied to each temple, or a subcutaneous injection of morphine hydrochlroate may be given.

Inhalant in Whooping-cough.—

℞.—Thymol	. . . . .	gr. xxv.
Ether	. . . . .	f ʒjss.
Essence of sassafras Essence of eucalyptus Essence of turpentine Liquid tar	.	āā f ʒiij.
Carbolic acid	. . . .	f ʒvss.
Alcohol, sufficient to make		f ʒj.—M.

S.—Gtt. xxx every two or three hours on a handkerchief about the child's throat.

BEALL, *L'Union Méd.*, 1892, No. 109.

Antidote for Hydrocyanic Acid.—KOBERT has shown experimentally that hydrogen dioxide, given by the mouth or subcutaneously, is an effectual antidote in poisoning by hydrocyanic acid.—*Provincial Medical Journal*, vol. xi, No. 130.

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SATURDAY, NOVEMBER 5, 1892.

CLEANLINESS THE BEST PREVENTIVE OF CHOLERA.

FOR the present the popular excitement concerning cholera has subsided. It is hoped, however, that permanent good results may be its legacy. The establishment of a uniform system of National quarantine under National direction, and the improvement of local quarantine-stations, is almost certain to be among them. There is another subject, however, of greater importance than quarantine. The student of epidemiology cannot overlook the experiment conducted for half a century on the greatest possible scale in Great Britain. With detention only of infected ships, persons, and goods, without the harsh and unnecessary quarantining of healthy persons and of ships so long at sea that the period of danger had long since passed (which in our frenzy has recently been practised at American ports), England has escaped the disease, despite her constant communication with India, where cholera is almost continuously endemic. In the admirable paper read before the Philadelphia County Medical Society by DR. BENJAMIN LEE (MEDICAL NEWS, September 17, 1892, p. 322), the reasons for this immunity have been forcibly set forth. English authorities insist upon domestic cleanliness. The rigid system of sanitary inspection, the improved and improving sanitary methods, the power vested in the Boards of Health and the means placed at their disposal, in Great Britain, enable clean streets, clean water, and clean houses to be interposed as a far more effective barrier against the invasion of disease than the most rigid quarantine can possibly be; and without the disturbance of commerce and personal hardship of travellers inherent in the quarantine system. Not that the domestic sanitation of Great Britain is perfect. If it were, typhoid fever would be unknown on the island; while as it is, the rate of mortality from typhoid fever in London is not far from one-fourth as great as the rate of mortality from the same disease in Philadelphia. Yet with all the admitted imperfections the sanitary system of Great Britain has repeatedly proved its efficiency against the importation of cholera into ports whose commerce in a week equals that of Philadelphia in a year.

Another significant fact is the remarkable result of the researches into the source whence cholera was imported into Hamburg. The natural supposition was that cholera having appeared in Russia, the large number of Jews expelled from that country had been, in their forced migrations through Europe, the carriers of the contagion. This appeared even more probable when it was considered that most of these people had been so maltreated that they had become reduced to a state of pitiable destitution, and were likely to become easy victims of pestilence. Contrary to expectation, however, careful investigation shows that apart from a few cases evidently contracted at the port of Hamburg, the Russian emigrants were "free even from the suspicion of the disease." (*Deutsche medicin. Wochenschr.*, No. 36, 1892). Still more remarkable is the fact that in Russia itself, notwithstanding the rigorous enforcement of the inhuman "May laws," by which Jews were expelled from their homes in the cities, towns, and villages outside of a certain limited district termed the "Jewish Pale," and from towns and villages even within the Pale, and crowded into certain already over-congested districts in the cities of the Pale, and this amid the horrors, moral and physical, so graphically depicted by HAROLD FREDERIC—still more remarkable is the fact that, despite all this, the Pale has been practically exempt from cholera; as an esteemed cotemporary puts it, "like a new land of Goshen in the blackness of the modern Egypt."

As neither the plagues of the "modern Egypt,"

nor the exemption therefrom of the modern Hebrews can be ascribed to miracle, and as religious belief, *per se*, can have no prophylactic virtue against disease, the cause of the immunity from cholera of the Russian Jews must be sought in customs dependent upon their belief. These are readily found in the Biblical and Talmudic laws of cleanliness. It is true that these laws merely prescribe practices observed by cleanly persons of all faiths and of no faith; but the fact remains that the vast majority of the inhabitants, even of civilized countries, are not cleanly, and in Russia cleanly persons form a very small minority. The Russian Jew would probably be as uncleanly as his neighbors did not the ritual of his religion compel him to be otherwise. The testimony of all impartial observers, however, agrees that he is cleanly, under circumstances not conducive to cleanliness. As most of the refugees have been compelled to travel long distances in large companies, often without shelter, and scantily provided with food and clothing, and facilities for complete cleanliness of person, the ritual factors of their immunity have probably been reduced to three: (1) Washing the hands after urination and defecation; (2) washing the hands before eating; (3) dietary restrictions and methods of preparation of food. Within the Pale, certain bathings of the entire person at prescribed times, occasional and periodic, and certain periodic house-cleansings have doubtless been additional protective influences, just as in the Middle Ages these practices preserved the Ghettoes from the invasion of the plague, despite the fact that the streets in the Jewish quarters of European cities were in an equally filthy condition with all other streets. But whether or not this explanation be correct, the facts are as stated, and they certainly challenge attention. The subject is worthy of accurate and detailed investigation by students of hygiene.

THE CHOLERA AT HAMBURG.

THE therapeutic lessons of the recent epidemic of cholera that has played such sad havoc in the city of Hamburg are not very assuring. In spite of modern methods of treatment and in the face of an enlightened hygiene, the mortality of the disease has been about 43 per cent.—a figure that does not reflect much credit upon our therapeutic resources, and not likely to inspire much confidence in them.

Basing his observations upon about three thousand cases, RUMPF (*Deutsche medicin. Wochenschr.*, No. 39, 1892, p. 877) makes a preliminary report upon the results of the various modes of treatment employed in the New General Hospital of Hamburg during the epidemic. The cases are considered in four divisions: Those of simple diarrhea; those in which intoxication has become manifest; cases in the algid stage; and cases presenting secondary conditions, of which the most important are septic fever and a tendency to coma, with nephritis.

When symptoms of intoxication are present the indication is to expel the offending organisms from the intestinal canal or to insure their destruction by chemical means. To accomplish the latter end a large number of remedies have been proposed. Largely on theoretic grounds salol has been recommended as a specific. The drug was faithfully used, but the results were most disappointing, as it proved entirely useless. There was the same experience with creolin. Creasote could not be taken in at all considerable doses, as, until rejected by vomiting, it served only to increase the sense of burning in the upper portion of the alimentary canal. Hydrochloric acid, lactic acid, the cresols, and chlorine water were also employed, but failed to exert any beneficial influence.

An extensive trial was early made of injections of tannic acid into the bowel, but the method had soon to be abandoned as futile. To explain the failure of these various agents to accomplish the purpose for which they were employed, it is suggested that not only has sufficient absorption taken place to occasion the phenomena of intoxication, but that the poisonous products of dead bacilli may be taken up through the injured mucous membrane. Subcutaneous injections of salol in ether and of morphine in sulphuric acid were also practised, but without success.

For the purpose of expelling the noxious matters from the intestinal canal and at the same time of disinfecting the contents of the bowel, calomel was used in a large number of cases, and preferably in those with simple diarrhea or in the first stage of intoxication, and with increasingly favorable results.[1] The drug was at first given in daily doses of four and a half grains, but subsequently, to adults, in doses of from a third to three-quarters of a grain every two hours. Under this treatment the vomiting and diarrhea were often favorably influenced;

[1] The utility of calomel in the early stages of cholera is confirmed by the results of its employment in India and recently in Russia.

if necessary, a thirtieth of a grain of cocaine in water was additionally given for the vomiting.

Next in usefulness to calomel was the hot bath, repeated as often as the temperature sank low. The direct results of the bath were seen in the deepening of the respiration and the filling of the pulse. In conjunction with the baths, hot tea and coffee and wine and champagne and injections of oil of camphor were given. The substitution of hot-air and steam baths for baths of hot water was not found advantageous. For the pain in the epigastrium and the cramp-like pain in the arms and legs morphine was given subcutaneously in small doses.

This plan of treatment, by means of calomel and hot baths, was carried out for three days, with results that were quite satisfactory; when it was supplemented by general measures, including opium, tannic acid, bismuth, and silver. The treatment of cases that had reached the algid stage was attended with results far less favorable. Many agents were used, among them hot-air and steam baths and inhalations of amyl nitrite, but all in vain. Only injections of morphine and camphor were persisted in. Subcutaneous infusion of a physiologic (0.6 per cent.) solution of sodium chloride fulfilled a certain useful end, but the best results were obtained from the intra-venous injection of large quantities (two pints) of the same solution at a temperature of 107.6°. Soon after, or even during the progress of such an injection into a vein, the pulse would improve, the respiration deepen, the somnolence disappear, and the color return to the surface. The result was, however, not always persistent, and it often became necessary to repeat the injection, perhaps once, perhaps twice, perhaps oftener; nor was the outcome always favorable.

Recovery took place in perhaps 25 per cent. of the cases thus treated at this stage. The good accomplished seemed to be due principally to the heat provided, and the dilution of the toxic matters in the system, and in an insignificant degree to the prevention of the thickening of the blood. In some cases medicinal agents were added to the fluid injected.

The conclusion is reached that there is as yet no specific treatment for cholera, but the hope is expressed that modern bacteriology may be the means of leading to the discovery of an agent that will destroy the poison of the disease without endangering the integrity of the organism.

COW'S MILK.

THE milk-supply of a community is a subject that cannot be too freely discussed, and of which the importance cannot be exaggerated, and the Medical Society of New Jersey deserves warm commendation for an inquiry instituted in this connection, the results of which are embraced in a report which has just been issued by a committee appointed for the purpose.

Milk is so universal and so essential an article of food that no means should be spared to insure and maintain its purity. Next to water it is one of the most common carriers of contagion. Countless are the epidemics of disease that owe their origin to infection transmitted by milk, and beyond calculation the resultant mortality. Further argument is not needed for the necessity of the purity of the milk-supply.

It goes without saying that milk must be obtained from healthy animals, that it must be free from adulteration, and free from contamination. It is not only necessary that the milk be unadulterated and free from decomposition, free from the presence of pathogenic organisms, and other noxious matters, but it should also conform to a definite qualitative and quantitative standard. It must not only have a definite specific gravity, but there should be a proper adjustment of its nutrient ingredients, of fat, of albumin, of salts.

It is to be feared that the desired result is not to be obtained from the spontaneous and volitional action of the dairyman, but it is essential to have his coöperation in the matter. No dairyman can produce good milk if he fail to supply his cows with proper and sufficient food, and fail to provide them with adequate and hygienic accommodations. If the present price of milk is insufficient to secure such ends (and we have no reason to believe that it is insufficient), the price must be raised.

After the insurance of a supply of milk of proper quality, it is important that the purity be maintained until the article is handed over to the consumer. This means scrupulous and intelligent care and cleanliness in all the details that enter into the processes to which the milk is subjected from the moment that it is obtained from the cow until it is delivered. It implies rigid cleanliness on the part of the milker, the greatest care as to the receptacles, the storage at a low temperature immediately after milking, and the prompt transportation and delivery. It then becomes the duty of the

consumer to take such precautions as boiling and to continue the application of the same principles as have governed the dairyman up to this point.

To attain the ends here outlined vigorous means are required. It is absolutely essential that the processes of the dairyman be subject to rigid scrutiny from beginning to end. It is not implied that dairymen are at all less to be trusted than other persons, but discipline can only be maintained by a thorough enforcement of methods of inspection and punishment for delinquents. This work of inspection can only be done by experts familiar with and versed in modern chemic and bacteriologic methods. The responsibility for providing such a board of officers belongs to the State, for it can have no higher duty than the protection of the health and the preservation of the lives of its citizens.

It is time that the reform in this direction should take practical shape. Existing legislation should be enforced, and if deficient, new measures should be formulated and put into speedy and efficient execution. With the knowledge that enteric fever, cholera, scarlatina, probably diphtheria and other fatal diseases are transmissible by milk, it were criminal to be indifferent or dilatory.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, October 12, 1892.

THE PRESIDENT, DR. JOHN B. ROBERTS, IN THE CHAIR.

DR. BARTON COOKE HIRST read a paper entitled "Symphysiotomy, with the Report of an Operation." (See THE MEDICAL NEWS, October 15, 1892, p. 431.)

DR. ANNA M. FULLERTON reported the performance of a similar operation on October 7th at the Woman's Hospital, by Dr. Anna E. Broomall.

The case was that of a colored woman, about thirty years of age, four feet eight inches in height, with a rachitic, generally contracted pelvis, the measurements of which were as follows: External conjugate, 19 cm.; spines of ilium, 23 cm.; crests of ilium, 24 cm.; diagonal conjugate, 10 cm.; true conjugate, 8¼ cm.

The pelvis representing the second degree of contraction, it was not surprising that the woman's childbearing record should be that of successively increasing difficulty with each delivery. She had borne six children, and had lost two of them through complications in the labors. In the labor preceding the one under consideration the breech had presented, and the child was lost during the birth.

In the present instance, the patient being near the close of full term, the membranes ruptured prematurely when there was little or no dilatation. Pains set in shortly after, and the patient continued in active labor for twenty-four hours. At the end of this time it was found that there was no attempt at fixation of the presenting part—the head—which still rested above the inlet, and whose size seemed quite disproportionate to that of the superior strait. The uterine os being quite dilatable at this time, and the fetal heart indicating that the child was suffering from the long continuance of the labor, the mother also showing signs of exhaustion (pulse 120, temperature 99°), it was decided to perform symphysiotomy.

Dr. Robert P. Harris, who had seen the patient previously to the onset of labor, and who had predicted the possible necessity of her requiring such an operation, was present, as were several members of the hospital staff. After the usual antiseptic precautions, the operation was performed by means of Galbiati's sickle-shaped bistoury as described by Dr. Hirst, and the child was delivered by the application of forceps. There was little difficulty in the extraction after the separation of the symphysis. The child breathed as soon as delivered, and still continues to do well. The head measurements were as follows: O. F., 12 cm.; O. M., 13½ cm.; biparietal, 9½ cm.; bi-temporal, 8½ cm.

It was appreciated at the time of extraction that there was a separation of three or four centimeters at the pubic symphysis. Upon extending the limbs preparatory to the closure of the wound and the application of antiseptic dressings, this space was reduced to one and one-half centimeters. A firm bandage was applied for fixation of the pelvic bones. Both mother and child, up to the present time, have continued to do well. The highest temperature of the mother was 99.6° F., and this but for a few hours, the temperature remaining normal for the greater part of the time. The pulse, which was 120 before labor, soon fell to 78 or 80.

Attention was called to the great difficulty in carrying out antiseptic precautions during the puerperium. The necessary fixation of the pelvis and lower limbs prevents the frequent and thorough cleansing of the vulva and the careful removal of all discharges, and interferes with the normal performance of the functions of micturition and defecation, without risk to the union of the symphysis. Some method would seem to need to be devised to obviate this complication.

DR. E. P. BERNARDY stated that the history of symphysiotomy dated back over a hundred years. At that time France and Germany gave it a fair trial; not fulfilling the object of its discoverer, Dr. Sigault, it died a natural death. In England the operation was opposed by all the then prominent medical men. Only one case was operated on, and it was the last, as the woman died.

Churchill, the most famous medical statistician the profession has ever known, reports as follows: In 49 cases 16 mothers died, or about one in three; and of 40 cases the child was born alive in 21, and died in 19.

M. Figueira gives a list of 157 cases, of which 72 mothers died.

Morisani, of Naples, read a paper on this subject in 1881, reporting that the operation had been performed in Naples fifty times, twice on the same woman. Forty women were saved, and ten died (20 per cent.). Forty-one infants were saved, and nine died (18 per cent.).

Kilian, in 68 cases, reports a maternal mortality of 32 per cent., and a fetal one of 63 per cent.

In 45 instances the vertex presented, with 4 deaths; in 3 the pelvic extremity, with 3 deaths; in 2 the trunk, with 2 deaths.

The statistics of embryotomy, symphysiotomy, and Cesarean section were compared.

Embryotomy. Tibone gives a maternal mortality of 21 per cent. Chiara gives a maternal mortality of 24 per cent.

Symphysiotomy. Morisani, the father of the operation, in 1881, in Italy, gives us 1 mother lost in every 3, and 1 child in every 2.

Cesarean section gives us 1 mother lost in every 2½ at the present era. The operation, as now performed, is attended with hardly any maternal loss. Two-thirds of the children are saved.

What is the object of the operation? To increase the diameter of the pelvis, thereby saving the child and preventing the operation of embryotomy or of Cesarean section.

The head presents in the oblique diameter at the superior strait, and the actual diameter that prevents the descent of the presenting part is the short or conjugate diameter. Does the section increase this diameter? If there is a separation of half an inch, about two lines are supposed to be gained; if there is a separation of an inch, about four lines are obtained. Sigault himself states that half an inch was the greatest separation that could be obtained without danger.

Undoubtedly the transverse and oblique diameters are the gainers through the section, but the actual diameter that is at fault is the one benefited the least.

To what extent can separation of the symphysis pubis take place without injuring the sacro-iliac synchondrosis? It is claimed that a separation of half an inch at the symphysis will give two inches of separation at the sacro-iliac synchondrosis. One inch at the pubis gives three inches at the iliac articulation, certainly a stretching that means danger and rupture, and any stretching much beyond this point may be followed by irretrievable injury to the maternal tissues.

The operation is not devoid of danger. Sigault, while he saved the life of his first patient, left her with injuries of the bladder and urethra of such a nature that she was unable ever afterward to retain her water. Incontinence of urine, prolapsus uteri, exfoliation of the bones of the pelvis, and gangrene of the parts have been known to have occurred. While, as a general rule, the separation of the symphysis pubis readily heals, still Cazeaux states that perfect union only takes place in from one to three months.

The operation is limited in its range. Sigault himself gave the limit at from three to two and a half inches, himself recommending the Cesarean operation in any case outside of this limit.

Symphysiotomy, as described by Dr. Hirst, is an apparently simple operation, and its very simplicity will be the cause of its abuse. Two of the cases operated on by Sigault were afterward delivered naturally. In a case of Le Roi's, the patient was delivered naturally twice afterward. Leblanc's case was afterward confined in a normal labor. Vandamen's patient had been delivered of children previously to the operation, leaving certainly a doubt in one's mind of the necessity for the operation. It is difficult to believe that if a woman has given birth to six children, there will arise in the seventh confinement the necessity of performing this operation.

It has been done, and history repeats itself.

In presenting these statistics and remarks, Dr. Bernardy did not wish to oppose the operation, but he believed it to be his duty to adopt any substitute for that of the fearful operation of embryotomy or the one of Cesarean section, and to give warning that this apparently simple operation, symphysiotomy, is not devoid of danger, and may be followed by serious results to both mother and child, and that obstetricians should be careful not to sanction its use until all the pros and cons have been fully understood and discussed.

DR. WILLIAM EASTERLY ASHTON touched upon two points in reference to the operation of symphysiotomy: First, in regard to Dr. Fullerton's remarks as to the impossibility of carrying out proper antiseptic care of the patient during the puerperal period; and second, in reference to the statistics quoted by Dr. Bernardy.

It is now well shown by the results of obstetric work done in Germany that the mortality following labor is less when vaginal irrigation is not used after the delivery of the child. It is, therefore, an easy matter, if vaginal injections are not employed, to keep the external organs clean without disturbing the pubic joint.

Dr. Bernardy's statistics would be invaluable if it were not for the fact that they refer to operations done before the days of antiseptic surgery. The statistics of the past teach nothing in this connection. Only the results obtained since asepsis became the keynote of all surgeons can be considered. The dangers of necrosis, of delayed union, and of cystitis are all the results of septic infection, and cannot be considered as possible consequences of a symphysiotomy done under modern methods. The cases collected by Dr. Harris were all operated on since 1886, and the brilliant results obtained must stand as evidence of what can be accomplished to-day.

Symphysiotomy is an advance in obstetric surgery, and its introduction into this country is due to the painstaking and laborious work of Dr. Robert P. Harris. The question under discussion is an important one, because, if what is claimed for symphysiotomy be true, embryotomy upon the living child will never be indicated—and Cesarean section will have a positive, but never a relative indication. Dr. Ashton expressed the belief that the obstetrician's first duty is to the mother, and that if it is a question between section and embryotomy, the latter operation is to be advised. The dangers of hernia, of bowel-adhesions, and of sinus-tracts are too real to look upon Cesarean section as a simple matter. Far better is it to destroy the child's life than endanger the future health and usefulness of the mother. The profession will hail with delight an operation that at once does away with the relative indications for Cesarean section and at the same time relegates embryotomy into oblivion.

DR. CHARLES P. NOBLE stated that the only matter to settle is whether or not there is a good working pelvis—one that a working woman can use. Then, unquestionably, symphysiotomy will replace Cesarean section done for the relative indication. But the most pleasing result of the revival of the operation is that it will take away from those who have no hesitation in destroying

the fetal life the excuse for so doing. Dr. Noble added that, personally, the idea of destroying the fetal life has been so repugnant that, with the improved results that have been obtained with modern Cesarean section, he had already determined that he would not destroy a living, viable child. One has no right to destroy the fetus when, with slightly increased risk to the mother, both may be saved. The risks of symphysiotomy are probably less than those of Cesarean section, especially in the hands of the average physician, and the risk of the elective Cesarean section is extremely slight. There is no reason why such a case should die except from accidents that are liable to happen in all things human. Even when the operation is not done under the best of circumstances the mortality is very slight in the hands of good operators. In the last thirty-eight cases operated on in Leipsic by eight operators, there were only two deaths. Cesarean section cannot be considered very dangerous, but at the same time there is no doubt that it is more formidable than symphysiotomy, and if the latter operation will result in a living baby and a sound pelvis, it is to be preferred to Cesarean section, except in cases of marked pelvic deformity (less than two and three-quarter inches in the conjugate), and in cases of bony or fibroid tumors.

Another way in which symphysiotomy will do good is that the public will not be so afraid of it. In many cases it will be possible to do symphysiotomy when consent to Cesarean section could not be secured.

Symphysiotomy will also be of service in covering up the careless obstetrics of Americans. As a rule women are allowed to go into labor without anything being known about the condition of the pelvis, without a knowledge whether or not there is any disproportion between the size of the head and that of the pelvis, which is only discovered if the child fails to come down in the natural way. With symphysiotomy the lives of many of these neglected women may be saved, which would be lost by Cesarean section done at the eleventh hour.

DR. ROBERT P. HARRIS stated that he had studied the cases of symphysiotomy from its beginning, in 1777, down to October 8, 1892. It is only since the beginning of 1886 that the operation has secured the position that it should naturally occupy. Late in 1885 there was a case lost. There has been but one death since, but that had no connection with the operation. The woman had been in labor several days, the right shoulder of the fetus presented, and the cord was prolapsed and beating feebly. The symphysis pubis was opened and the child turned and delivered in a deeply asphyxiated condition. The woman died twelve days later with metro-peritonitis, the result of manipulations practised before she was brought to the hospital in which the operation was performed. From January 1, 1886, to October 8, 1892, there were fifty-two operations with one death. Seven children were lost. Only one was born dead. Three were born in an asphyxiated condition, and the rest died during the first three days. If the child does not survive beyond the first three days, it was counted as lost. Out of fifty-two children forty-five lived. Fifty-one were born alive.

Among the men who have taken up the operation are Professors Charpentier and Pinard, of Paris, the second of whom has operated eight times in seven months; Prof. Leopold, of Dresden, who has operated twice; Prof. W. A. Freund, of Strassburg, who has operated once, and Dr. Charles Porak, of Paris, who has operated twice. Porak's first case will teach a good lesson. The woman had a pretty fair-sized pelvis, but the fetus was too large to pass through. He put on the forceps and made all the attempts that he thought proper, but failed to deliver the child. He did not think that it was a case for Cesarean section. The woman had been in labor some hours. He opened the symphysis, put on the forceps a second time, and accomplished the delivery without any trouble. The woman recovered and the child lived.

DR. DEFOREST WILLARD asked, What would be the objection to a subcutaneous operation? Would it not be as useful, and would it not avoid the dangers alluded to? It could be done with almost perfect safety.

DR. HIRST stated that he did not see that any advantage would be gained by subcutaneous operation. In all of the recent cases there has been primary union of the symphysis and of the wound. In the case reported the stitches were removed on the fifth day, and union was complete. At the end of a week the symphysis was tested by alternate pressure on the iliac bones, but no motion could be felt. By subcutaneous section the urethra and neighboring vessels could not be protected. By first sliding the finger down close to the bone and passing the knife along its palmar surface there is no danger of wounding the urethra or vessels. Injury to the vessels occurred in one of Leopold's cases, and necessitated the temporary suspension of the operation. The subsequent course of the case is as good with the open wound as it would be were the section subcutaneous.

DR. EDWARD JACKSON read a paper entitled "Foreign Bodies in the Cornea." The history given by the patient, as to a foreign body in the cornea, is often worthless. If the foreign body is but partly imbedded, and the projecting portion is hard and angular, so that every movement of the lid causes a scratching of the conjunctiva lining it, the patient, of course, immediately notices its presence, and can give a correct and definite history of its occurrence; but if the foreign body be deeply imbedded, so that it does not touch the conjunctiva of the lid, or if it lie with a perfectly smooth surface presenting to the lid, its entrance may not be noticed, or the momentary disturbance caused by it may be so slight as to be forgotten before the secondary effects of its presence draw attention to the eye, and even if those secondary effects are ascribed to it, and the foreign body itself be perceived, it may be supposed to have entered the eye at a time considerably later than was the case. Often, however, the patient will, on account of the gradual advent of the symptoms of irritation, ascribe them to an entirely different cause.

Again, very many patients come with the impression that a foreign body is in the eye, from the irritation—the sensation of scratching—caused by a simple conjunctivitis. Having thought the matter over carefully and repeatedly, they can usually tell just when and how the mythical foreign body was lodged there. They even go so far as to accurately locate it, by picking out some spot on the iris not before noticed, and regarding it as the offending object.

For the diagnosis of a foreign body in the cornea one must depend on what generally is the sufficient basis for a diagnosis in diseases of the eye—the results of examination of the patient. If the foreign body is comparatively large, the most casual glance may reveal its presence, but often there is need for special methods and a prolonged search before its presence or absence is established; and even when its presence is perfectly obvious at the first glance these same methods must often be employed to make sure that we have completed its removal.

In the search for the foreign body the important idea with reference to the illumination of the eye is that it shall be thoroughly under the control of the surgeon, so that he may either strongly illuminate the cornea itself and view it against a dark background of unilluminated iris and pupil, or he may illuminate the background, leaving the cornea in comparative darkness, and depending on the interruption of the light from the background that any opaque foreign body will cause, to reveal its location. This is the advantage that the so-called "oblique" or "focal" illumination in the dark room possesses over inspection by ordinary diffused light.

The shifting of the point of view, so as to bring the foreign body into the area of most favorable illumination, is essential to any thorough search, whatever method is employed. By focal illumination foreign bodies of light color will be best seen when strongly illuminated against the black pupil as a background; while if the foreign body is dark it is better to strongly illuminate the iris behind it.

One may also get an illuminated background, against which a foreign body will usually appear as a black speck, by throwing the light into the eye with the ophthalmoscope mirror held several inches in front of it, and shifting the position of the eye or the point from which it is viewed so as to obtain the fundus reflex through the different parts of the cornea.

An excellent method of searching for the foreign body, and one that has the advantage of being available during its removal, is to look for the interruption that it causes in the reflex obtained from the corneal surface. To do this, the patient should be made to face a window with a large open sky-space, while the surgeon takes his position so as to obtain the reflection of the sky-space from the surface of the cornea, a very good position being to stand behind the patient, looking down on the cornea. The patient's eye is then turned from point to point, so that the reflection is obtained from all parts of the cornea in succession. If the window with clear sky-space is not obtainable, a piece of plain white paper or cardboard strongly illuminated, and held close in front of the eye to be examined, will furnish the required reflex from the corneal surface. The essentials are that the reflex shall be bright, uniform, and large enough to enable the observer to go rapidly over the whole cornea without missing any part of it.

If on any part of the surface there is an irregularity, as an ulcer or a foreign body, this will cause an interruption of the reflex, and be immediately noticeable. A great help in making such irregularities prominent is the careful drying of the cornea with a little absorbent cotton, a method to the full value of which attention has been called by Dr. M. W. Zimmerman. The removal of all moisture does not impair the reflex from the sound cornea, but lays bare any irregularity or loss of substance, which, when filled with fluid, would give almost the normal corneal reflex.

Another aid to the detection of foreign bodies in the cornea is the use of a solution of fluorescin. A good solution consists of

Fluorescin	1 grain.
Sodium carbonate . . .	2 grains.
Distilled water	1 fluidram.

A single drop of this is placed on the suspected cornea, and after two or three minutes the excess is allowed to be washed away by the tears. It is then found that while on the uninjured cornea not the slightest effect has been produced, the corneal tissue in the neighborhood of any recent abrasion has been stained a noticeable light-green. This discoloration at once directs attention to the locality of the injury, and the stained tissue furnishes a background against which any foreign body of dark color is more readily seen.

While the reception of a foreign body in the cornea may not be noticed, and during the first few hours the pain and redness resulting from its presence are likely to be quite slight, its continued presence provokes a reaction that increases in severity, until it is gotten rid of. At first the redness will be confined to the vessels of the part of the pericorneal zone nearest the foreign body, and its location will then often guide us to the site of lodgment. Later, it extends until the whole conjunctiva and the deeper tissues of the globe become hyperemic, when it becomes of little diagnostic value. With the increased vascularity come increased pain and tenderness.

Self-cure, in the case of a foreign body in the cornea, takes place by suppuration of the adjoining tissue to such an extent that the softening loosens the foreign body and allows it to be rubbed off by the movements of the lids—a slow, painful process, that probably few persons are stolid enough to submit to without seeking competent aid for its removal. In a few cases, however, the inflammation subsides, the foreign body becoming surrounded with fibrous tissue that tolerates its presence, and in rare cases it is possible for a foreign body to remain in the cornea a long time without provoking any reaction. Three cases were referred to in which foreign bodies were thus retained for periods varying from one to eighteen months.

Of the removal of foreign bodies from the cornea in general, little need be said. The introduction of cocaine as a local anesthetic has enormously simplified this. There is, perhaps, some danger now of being led by the passive demeanor of the patient to indulge in unnecessary manipulation of the parts. The thorough cleansing of the actual cavity of lodgment, together with the scraping away of the bruised and lacerated tissue, is very important, but the promiscuous scraping of the neighboring surface, in the attempt to catch a foreign body that is not clearly seen, is always harmful, if not dangerous.

When the foreign body enters with such force as almost to penetrate the cornea, and to a still greater extent when it projects into the anterior chamber, its

removal becomes an operation of considerable delicacy and importance, on account of the danger of the premature escape of the aqueous humor and the scratching or puncture of the anterior capsule of the lens, causing traumatic cataract.

COLLEGE OF PHYSICIANS.

Regular Meeting, October 5, 1892.

THE VICE-PRESIDENT, DR. J. M. DA COSTA, IN THE CHAIR.

DR. C. W. DULLES read a "Report of a Case of Akromegaly." (See p. 515.)

DR. S. SOLIS-COHEN also reported "A Case of Akromegaly." (See p. 518.)

DR. F. A. PACKARD remarked that the peculiar limitations of the fields of vision in Dr. Dulles's patient go to prove that there is a large number of cases of akromegaly in which a tumor of the pituitary body, on which so much stress has been laid, has nothing to do with the disease. An interesting observation has been made by a German experimenter. He has found that excision of the thyroid gland causes in rabbits increase in the size of the pituitary body. In the case that Dr. Packard had presented to the College the thyroid gland was absolutely imperceptible to touch. It had been a matter of consideration, if the final results of English experiments in transplantation of a thyroid gland to the peritoneal cavity, in cases of myxedema, prove favorable, of persuading the patient to submit to the operation in the hope of obtaining relief from the intense headache from which he suffered.

DR. F. X. DERCUM stated that in neither of the cases that he had reported was there headache, and in only about one-third of the reported cases had headache been noted. It appears that only those cases come under observation in which there is headache or eye-trouble, and that many cases exist in which the individuals have no occasion to consult a physician.

In connection with the pituitary body, it is noteworthy that, some years ago, Dr. Mitchell reported a case of cerebral aneurism which probably had its origin in an anomalous vessel of the circle of Willis. The whole pituitary body had been destroyed by the aneurism, and there had been bi-temporal hemianopsia, but there was no trace of any peculiar enlargement of the face, hands, or feet.

Dr. Cohen's case is also of interest, as showing that the affection consists not only in an enlargement of the ends of the body, but in an overgrowth of the muscular tissue and of the bony walls of the chest. While there is a tendency for the accentuation of the enlargement in the ends of the body, it is not limited to these parts, but may appear elsewhere.

The observation in regard to the hemianopsia is of exceeding interest, and brings up the whole question whether the bi-temporal hemianopsia found in other cases is to be regarded as due to the enlargement of the pituitary body or not.

DR. C. W. DULLES said that in studying a rare disease there is always a little risk of making the mistake of considering as an example of the disease cases that are really not such. There is some danger that cases of mere gigantic development may be considered as cases of akromegaly. According to Marie, this disease does not consist simply in a mere overgrowth of certain tissues, but it is a disordered condition of the system, of which overgrowth of certain tissues is only one of the manifestations. Genuine cases of akromegaly have something more than this, and cases thought to be such ought (if medical terms are to have any fixed meaning) to present a resemblance in their clinical history to the picture drawn by Marie, who first described the disease. Dr. Dulles contended that the history given by Dr. Cohen and the pictures presented did not impress him with the idea that the patient had akromegaly. In order to justify that diagnosis, it should be possible to contrast the present condition, either by good description or by pictures, with something quite different within a recent period. The man is naturally large, has been a blacksmith, and is well developed as an athlete. The fact that he has a large head, legs, and hands, and a curved back, does not justify the belief that he has what Marie called akromegaly.

The photographs shown by Dr. Cohen seem to represent a man who is pretty uniformly well-developed, and who has, what Marie says does not occur in akromegaly, an unusual development of the long bones. The hands look graceful and well proportioned. They do not appear to be the sausage-shaped fingers of Marie. There seems to be nothing peculiar about the pictures except that they show a very large and muscular man, with unusually long arms.

DR. S. S. COHEN replied that he had studied the case carefully from the standpoint of akromegaly. The photographs do not show the appearance so well as does the man himself, but those familiar with the disease will recognize that the physiognomy and the hands are the same as those in the cases presented by Dr. Dercum. The tracings and photographs of these hands are not normal, nor are they graceful. The deep furrows, the cylindrical shape and the thick, fleshy pads of the fingers, and the lateral enlargement of the whole hand are marked, and had attracted the attention of the man's fellow-students. They had especially remarked that the wrists were not proportionately enlarged. Further, the face is striking, and the man himself reports a change in his features and an increase in the size of his hat. His ears, which were disproportionately large as a boy, are now not so much out of place. The projection of the skull over the frontal sinuses and that of the malar bones are marked; the lips are thickened, the lower lip overhangs, and the vertical depth of the jaw is increased. The curved back, the prominent abdomen and the varicosities, while not in themselves remarkable, added much to the *tout ensemble* which justified the diagnosis. If to these facts is added the further fact that, although large, the man is not, in any proper use of the words, well developed, but that, as stated in the first place, he is awkward and clumsy, and although, when a blacksmith, he could handle a heavy hammer with ease, yet now, when he is apparently so much more muscular, he has little strength, there can be no doubt that this is a genuine case of akromegaly. In addition, there is apparent atrophy of the thyroid gland.

DR. F. X. DERCUM stated further, that from the photographs and the history, he had no doubt that the case

reported by Dr. Cohen was one of akromegaly. The face has the vertical elongation, the vertical depth of chin, the increase of the malar prominences, and also the thickening of the superciliary ridges. The hands are almost typical. The man is still young, and in the course of a few years the case will probably become more pronounced. In the case reported by Virchow, which has never been disputed, the nose and mouth were not excessively enlarged, but the hands were large, and so also were the muscles.

Psychic depression is not a necessary feature of the affection. It was present in one of Dr. Dercum's cases for a short time, and not present in the other. Neither of these cases had occasion to consult a physician. Neither had headache or eye-changes.

CORRESPONDENCE.

SURGERY OF THE APPENDIX VERMIFORMIS.

To the Editor of THE MEDICAL NEWS,

SIR: I have just read with interest a leading article in THE MEDICAL NEWS for August 6th on the matter of operative treatment in inflammation of the vermiform appendix.

The fact that I live in a remote island, and, further, that a holiday of two months has taken me away from the haunts of books, must explain this tardy allusion to that paper.

The article discusses the origin of the operation for removing the vermiform appendix, and it is stated that to Dr. Thomas G. Morton belongs the credit of devising this procedure; the suggestion is made that the operation should be called "Morton's operation," and it is asserted that Morton's operation embodies one of the most important and radical advances of modern surgery. Dr. Morton thus becomes the founder of what will, I suppose, be known in the future as "Appendiceal Surgery"—should the present love for ridiculous terms survive.

I gather that Dr. Morton's first operation was performed in 1888, and was reported in the Philadelphia County Medical Society's *Transactions* for that year. The nature of the operation is not stated. Who first excised the appendix vermiformis some musty and forgotten tome will no doubt reveal in course of time. I know that the cecum was wholly removed (with success, by the by) by Arnaud, in 1732, but I have not yet completed my inquiries into the past surgical history of its appendage. So far as modern times are concerned, I should say that we owe the little item of surgical treatment under discussion to the admirable writings of Fitz, whose chief monograph appeared in 1886. In 1886 a patient with relapsing typhlitis came under my care in the London Hospital, and after due consideration I proposed to "deliberately seek for and remove" his appendix. I operated upon him during a period of apparently perfect health, on February 16, 1887, and was able to correct the distortion of the appendix without actually excising it. He made a perfect recovery. On September 19, 1887, I brought the matter before the Royal Medical and Chirurgical Society. The paper was read in February, 1888. I advised the treatment of selected cases of relapsing typhlitis by the deliberate removal of the offending appendix during a quiescent period. The proposal was not well received. In due course, however, an exuberant reaction took place, and of late years appendices have been removed with a needless and illogical recklessness which has brought this little branch of surgery into well-merited disrepute.

Discussions on questions of priority constitute the most pitiable and petty items in the literature of medicine. Time disposes of all such questions with absolute justice. The object of this letter is merely to bring up from oblivion an unpretending paper which lies buried in the annals of an ancient society.

Believe me to remain,

Yours faithfully,

FREDERICK TREVES.

6 WIMPOLE ST., CAVENDISH SQUARE, W.,
LONDON, October 19, 1892.

NEWS ITEMS.

The New York State Medical Association will hold its ninth annual meeting at the Mott Memorial Hall, New York, November 15, 16, and 17, 1892.

The following papers are announced:

"Pneumectomy for relief of tubercular abscess of the lung; twice on the same patient; recovery." By J. Blake White, M.D., of New York Co.

"Traumatic osteo-arthritic lesions which involve the proximal segment of the ankle-joint." By Thomas H. Manley, M.D., of New York Co.

"Muscular traction for hip-joint disease." By T. M. Ludlow Chrystie, M.D., of New York Co.

"Ectopic pregnancy." By Henry D. Ingraham, M.D., of Erie Co.

"Treatment often found necessary after trachelorrhaphy for the purpose of restoring the uterus to its normal condition." By William H. Robb, M.D., of Montgomery Co.

"The palliative treatment of such cases of cancer of the uterus and its adnexa as are not amenable to radical operative measures." By J. E. Janvrin, M.D., of New York Co.

"Antiseptic vaginal and intra-uterine injections unnecessary, if not injurious, in the daily practice of midwifery." By Darwin Colvin, M.D., of Wayne Co.

"The question of drainage in pelvic and abdominal surgery." By C. C. Frederick, M.D., of Erie Co.

"A case of puerperal eclampsia at the seventh month, with a few thoughts as to treatment from practical experience." By Douglas Ayres, M.D., of Montgomery Co.

"The etiological factors of a general character, potent in the production of diseases peculiar to women." By George Tucker Harrison, M.D., of New York Co.

"Abortion and manslaughter." By F. W. Higgins, M.D., of Cortland Co.

"Pelvic version." By T. J. McGillicuddy, M.D., of New York Co.

"Abdominal hysterectomy for myoma." By Frederick A. Baldwin, M.D., of New York Co.

"Tumors of the orbit and adjacent cavities." By Charles Stedman Bull, M.D., of New York Co.

"Electicism in the treatment of cataract." By Alvin A. Hubbell, M.D., of Erie Co.

"The treatment of neglected cases of rotary lateral curvature of the spine." By Reginald H. Sayre, M.D., of New York Co.

"A review of some of the injuries of the upper extremities." By E. M. Moore, M.D., of Monroe Co.

"The mental symptoms of fatigue." By Edward Cowles, M.D., of Summerville, Mass.

"Paraplegia." By Charles W. Brown, M.D., of Washington, D. C.

"Acute pleurisy." By Frank S. Parsons, M.D., of Northampton, Mass.

"The question of maternal impressions." By H. S. Williams, M.D., of New York Co.

"A clinico-pathological study of injuries of the head with special reference to lesions of the brain substance." By Charles Phelps, M.D., of New York Co.

"Personal experiences and conclusions in the domain of brain surgery." By Roswell Park, M.D., of Erie Co.

"A plea for the early extirpation of tumors." By John W. S. Gouley, M.D., of New York Co.

"Fractures of the neck of the femur in the aged." By Stephen Smith, M.D., of New York Co.

"Fractures of the patella treated by continuous extension; patients not confined to bed." By Joseph D. Bryant, M.D., of New York Co.

"Some recent cases of apendicitis." By Nathan Jacobson, M.D., of Onondaga Co.

"A report of some cases of compound depressed fracture of the skull." By George D. Kahlo, M.D., of Indiana.

"The achievements of American surgery." By Frederic S. Dennis, M.D., of New York Co.

"A few facts and fancies." *a.* Early aspiration in pleurisy. *b.* Mineral waters, crude and refined. *c.* Coughing made easy in bronchiectasis. *d.* Craftiness of the insurance sponge. By Henry D. Didama, M.D., of Onondaga Co.

"The etiology of gastric ulcer." By Charles G. Stockton, M.D., of Erie Co.

"The examination and commitment of the insane in New York County." By Matthew D. Field, M.D., of New York Co.

"Mitral stenosis in pregnancy, with report of cases." By Zera J. Lusk, M.D., of Wyoming Co.

"The use of electricity in midwifery." By Ogden C. Ludlow, M.D., of New York Co.

"A résumé of our present knowledge of microbes in disease." By Nelson B. Sizer, M.D., of Kings Co.

"Winter cholera in Poughkeepsie." By James G. Porteous, M.D., of Dutchess Co.

"Discussion on the prophylaxis and treatment of cholera." By Alfred L. Carroll, M.D., of New York Co. By Joseph D. Bryant, M.D., of New York Co.

"Suggestions relating to improvement of the quarantine system." By Stephen Smith, M.D., of New York Co.

"The limit of responsibility in the insane." By John Shrady, M.D., of New York Co.

"Some personal observations upon the treatment of alcoholism, and the known effects of alcoholic abuse upon posterity." By H. Ernest Schmid, M.D., of Westchester Co.

"Climatology in its relation to disease." By S. J. Murray, M.D., of New York Co.

"The therapeusis of pyrexia." By S. T. Armstrong, M.D., of New York Co.

"Brief comments on materia medica, pharmacy, and therapeutics." By Edward H. Squibb, M.D., of Kings Co.

"Dermic and hypodermic therapeutics." By S. F. Rogers, M.D., of Rensselaer Co.

"Some recent experience in renal surgery." By E. D. Ferguson, M.D., of Rensselaer Co,

Fifth International Congress of Otology.—Baron Léon von Lenval, of Nice, has offered a prize of 3000 francs ($600) for the best instrument for improving the hearing power of those partially deaf. It is to be constructed on the principle of the microphone, and to be convenient to carry. Instruments in competition for the prize should be sent to Professor Politzer, president of the jury, in Vienna, before the 31st day of December, 1892.

Only finished instruments will be admitted in competition. They must be complete in mechanical construction.

The publication of the decision of the jury, and the giving of the prize, will take place at the Fifth International Congress of Otology, in September, 1893.

Billroth has just celebrated the twenty-fifth anniversary of his accession to the professorship of surgery at Vienna, and the fortieth anniversary of his entrance upon the practice of medicine. In recognition of his valuable services the Emperor of Austria has conferred a special honor upon Billroth.

In re Cholera.—The following letter of advice was received by an officer of a Board of Health, and may prove of interest to the medical profession:

The Census and Board of Healt,
Washington.

DEAR SIR:

As so I have was a strong cholera doctor in old land, Sweden, I will therefore hereby send the Board of Healt few lineer.

I will first say: that no body who dead in cholea, may be burned, and bed or cloths after this is no in right way, for this is more to spred and stop dean choleran. To all who comes near this smocking been in same time get cholerabacile, the nerv- and bloodsysteme, where after choleran can beck out in a half and one year therafter.—Every body, who dead in cholean, may be burial in 8 to 10 feet deep grave with the cloths and sheets, who they dead in withing 10 hour after dead; no more. The grave may be overlayd with kalk and on coalashes. The rooms, beds and cloths after cholera dead must be wel clearned or washed with frish water, saltsoap and spiritus of comphor, or the cloths who not can suffer a wash, may be strippled with sp. camphor. Thereafter rooms and all the cloths may be smocked by one part camphor, one part of sulphur, ½ part of colophonium and litle tar, thereafter hang all cloths up in a free air room for 6 weeks, wherafter the cloths is no fare in.

I tink this may be publiced, so all the Boad of Healt in all sea town may knowled it.

Respectfully, ——— ———

P.S. 200 children have of me been this year vaccined, 18 thereof missed. L.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, NOVEMBER 12, 1892. NO. 20.

ORIGINAL ARTICLES.

REPARATIVE SURGERY OF THE PERIPHERAL NERVES.[1]

BY FRED. JENNER HODGES, B.Sc., M.D.,
LECTURER ON SURGERY, CHICAGO POLYCLINIC; SURGEON TO EMERGENCY HOSPITAL, ANDERSON, IND.

THE utter helplessness of the physician in combating both central and peripheral structural diseases of the nervous system has, since its very inception, cast an opprobrium upon the healing art. Nor could it be otherwise. What therapeutic measures, aside from the knife and the saw, are capable of effecting resolution of bone or callus; limitation of a neoplasm; elimination of a blood-clot, pus or excessive cerebral fluid; of dispersing adhesions and cicatrices? Yet it is only within the past decade that these powerful agents for good have been successfully directed upon the field of nervous diseases.

Past generations of neurologists rendered their patients that were the victims of organic disease little or no permanent relief, but "they builded better than they knew," for the vast store of clinical and experimental facts which they bequeathed us, serving as a basis for the "New Surgery," has made possible the marvellous triumphs of the hour. Witness the results of MacCormac, Horsley, Keen, Briggs, and scores of others in epilepsy; of Keen and Lannelongue, in microcephalus; of Shaw and Wagner, in general paralysis of the insane—yet these are but as a handful to the whole number of brilliant successes even now to be credited to surgery.

Thus far I have drawn upon the maladies of the central system for illustrations, not because their history differs from that of the peripheral affections, for such is not the case, but because the results in the former department have been brought more prominently and persistently before the profession. Reparative nerve-surgery, conducted upon a definite scientific basis, is practically a development of the past decade. It was not until the publication by Bowlby of his Jacksonian Prize Essay for 1882, and his Astley Cooper Essay for 1886, that an attempt was made to arrive at the general surgical principles that must serve as the foundation of a rational treatment of nerve-injury.

Previous writers have been pleased to divide the history of reparative procedures into epochs, and following them, we very naturally recognize four: The first from the time of Hippocrates and Galen to 1795, the year in which Cruikshank[1] established the reality of nerve-cicatrization and regeneration; the second ending in 1864, with the publication by Weir Mitchell of his observations and studies, during the Civil War,[2] upon gunshot wounds of the nerves; the third brought to a close by the first of Bowlby's Essays, and the fourth comprising the ten years that have since elapsed.

The incidents that I have named are veritable landmarks in this field, as each in its time has served strongly to influence professional opinion. The Father of Medicine taught that divided nerves never regenerate, and such was the general belief until Cruikshank showed by experimental division of the pneumogastric in animals that such was certainly not the invariable rule, whereupon the pendulum of professional opinion swung to the opposite extreme, and we witness the general acceptance of the belief in the invariable regeneration of severed nerves. Mitchell, in 1864, and Bowlby, in 1882, did much to correct this fallacious and pernicious doctrine, but it has not, even to this day, been entirely dispelled from the professional mind. Not many months ago I heard a member of a faculty with which I was connected gravely state to his class that divided nerves required no special consideration, as, if left to themselves, regeneration invariably took place within four years. Only a refreshing and delightful ignorance of the labors of the past decade could prompt so remarkable a statement.

Bowlby's Essays, to which I have already directed attention, were, with additions, reproduced in 1889 under the title of *Injuries and Diseases of the Nerves and their Surgical Treatment*,[3] and at once secured a wide circulation, being read with pleasure and profit by surgeons the world over; and so exhaustively has the author treated his subject in these published writings that followers can hardly hope to add much that is really new to the wealth of experimental and clinical facts that they contain. However, the possession of a personal experience differing in certain important particulars from that of the author named, and a desire to bring to your attention the possibilities of the future as well as to

[1] Read before the Indiana State Medical Society, May 12, 1892.

[1] Transactions of the Philosophical Society, 1795.
[2] Injuries of Nerves. Mitchell.
[3] London, 1889.

record the achievements of the past, must make any necessary amends for the present paper.

The integrity of nerve-function may be (*a*) impaired or (*b*) destroyed by pressure, contusion, or division, which may arise intrinsically or extrinsically, being developed rapidly or gradually, as the result of local or general exciting causes; accordingly the symptomatology and prognosis of this class of lesions vary within wide limits. Generally speaking, a lesion resulting from a general or systemic exciting cause—as, for example, an alcoholic or arsenical neuritis—is multiple, and consists essentially in a destruction of the ultimate axis-cylinders. Such lesions are therefore not amenable to surgical treatment, and are consequently foreign to this paper.

Symptomatology. It is hardly necessary to state that the symptoms attending nerve-injury vary in nature and intensity with the character, severity, and duration of such injury.

Contusion. Contusions, if single and moderately severe, give rise to a momentary sharp pain, often followed by transient tingling and numbness over the area of distribution of the nerve. I dare say there is no one present who has not at some time suffered a contusion of the ulnar nerve as it passes through the internal notch at the elbow, constituting what is commonly known as the "funny-bone." When single nerves or groups of nerves are subjected to slight, repeated contusions there is often little or no pain, but the numbness and pricking gradually give way to muscular paralysis, and finally, in extreme cases, to complete motor and sensory paralysis, constituting the so-called "sleep or occupation palsies," crutch-paralysis, etc.

Severe contusion of a nerve may result in an immediate loss of muscular power without impairment of sensation, more rarely in paralysis or perverted sensation, the motor functions remaining intact. Occasionally simple contusion may result in complete motor and sensory paralysis, but such an occurrence is rare, and unless speedy improvement is manifested, the diagnosis must be seriously questioned.

Compression. As is but natural to expect, the character and severity of symptoms attending nerve-compression are dependent altogether upon the intensity, duration, and particularly upon the rapidity of action of the compressing force. The pressure exerted by the retraction of a cicatrix may never give rise to pain or marked anesthesia, making its existence evident only by muscular wasting or trophic changes in the skin; while a nerve incarcerated and compressed within a line of fracture may engender such excruciating pain as seemingly to necessitate amputation.

In general, the symptoms of compression differ only in degree and rapidity of development from those of division, and accordingly they may with profit be considered together.

Division. Division or extreme compression of a nerve is followed at once by complete muscular and sensory paralysis over the area supplied by it, and hence an intimate acquaintance with the ultimate cutaneous and muscular distribution of the peripheral nerves is an absolute requisite for the correct interpretation of such phenomena. It is just here that one is often led astray. Take the anterior tibial nerve, for instance. Its cutaneous distribution is limited to a small area on the dorsum of the foot, and an injury, except it be a chance penetrating wound, which would sever this nerve, would at least partially divide the extensor muscles or tendons of the foot, and the paralysis, which of course really results from the division of the nerve, is likely to be ascribed to the wounded tendons, since the integument supplied by this nerve, and the consequent anesthesia, is so limited in extent as to be readily overlooked. This is not an imaginary instance, but actually occurred in one of my early cases.

In testing the cutaneous sensibility, after supposed nerve-division, it is very important to remember the manner in and extent to which cutaneous nerves overlap each other, as in injuries of a given nerve there is never developed a clearly-defined area within which function is entirely abolished, and outside of which it is normal. Even after division of nerves of considerable size the area of absolute anesthesia may be quite limited, but surrounding this are zones or bands exhibiting all degrees of sensation up to the normal.

It is equally important to remember that the tissues underlying the skin may be, and in point of fact usually are, supplied by *different* nerves; hence in examining a given area, friction or firm pressure may seem to elicit sensitivity of the *skin* when none really exists. It is quite generally taught that sensation, when not altogether destroyed, may be modified or perverted in various ways. An area insensitive to ordinary forms of irritation may still be capable of distinguishing heat from cold; or one in which the tactile sense is altogether abolished may be the seat of heat, prickling, numbness, etc. This is an undeniable fact, but I take exception to its usual interpretation. Personally, I doubt very much if the so-called phenomena of perverted sensation have, in reality, any connection with normal cutaneous sensitivity. The anesthetic integument is not so bad a conductor of heat but that the nerves of the underlying cellular tissue, if intact, may be influenced by the temperature of the examining body; and the tingling and numbness which are referred by the patient to the anesthetic area are, in reality, I believe, engendered in the proximal nerve-

stump by the reparative changes going on there. We have analogous instances in the knee-pain of hip-joint disease, and in painful stumps after amputation.

Electric reactions. The faradic excitability of the paralyzed muscles usually disappears within three or four days. Bowlby has seen only one case in which it persisted more than a week. Galvanic excitability I do not find to be augmented in man, although Erb[1] found it so in animals. On the contrary, and I am supported in this observation by Bowlby, there is a rapid diminution of excitability, so that it disappears altogether between the third and sixth week. It is a common observation that in man the A. C. C. => K. C. C., constituting the so-called "reaction of degeneration." Formerly, this symptom was accepted as positive proof that the nerve was irreparably injured. Surgery has made such an interpretation no longer valid. It is, nevertheless, of considerable value, showing, as it does, that the muscle is physiologically cut off from the cord. The electric reactions are of little prognostic value, as sensation, and very often motion, reappear before electric excitability is re-established.

Trophic changes. When a part is altogether deprived of its connection with the multipolar cells of the anterior gray horns there ensues a gradual but marked change in its nutrition. Its integument becomes smooth, shiny, and frequently the seat of distressing *causalgia.* The muscles waste, and the action of their unopposed antagonists results in permanent contractures, giving rise to various characteristic deformities. The hair over the paralyzed area falls out or becomes brittle and stumpy; the nails become curved in their long axis, and extremely arched from side to side; while often thin, shiny, and vitreous. They are as frequently stumpy, uneven, and fibrous, and present series of notched, transverse ridges of varying height. The affected areas, owing to their anesthetic condition, are liable to suffer from burns, frost-bite, or other forms of traumatism, and the vitality of the tissues being extremely low, there is but little tendency to repair, so that extensive sloughing and gangrene are not infrequent.

The lack of trophic influence is seen as well in the sweat-glands. An injury of a cutaneous nerve that falls short of complete division, particularly if neuritis exist, gives rise to excessive secretion of sweat over the affected area; if, however, the nerve be severed, the area remains dry and parched, even when the remainder of the body is bathed in perspiration. Although typical trophic changes occur more rapidly after complete division of a nerve, they are not infrequently seen in instances of gradually progressing compression. Often there is witnessed localized edema, followed by muscular wasting, yet with little or no impairment of motion or sensation. Such a condition is pathognomonic of compression.

Shock. Mitchell is the only writer who notices shock as following simple nerve-injuries, and as his cases were largely gunshot wounds, it is highly probable that the shock observed is to be ascribed to the nature of the injury, rather than to the structure involved.

Nerve-regeneration. As I have before stated, it was Cruikshank, in 1795, who first established the fact of nerve-cicatrization and regeneration. The briefest possible sketch of the succeeding theories, speculations, clinical and experimental observations having a legitimate bearing upon the subject would of itself far transcend the necessary limits of the present paper, and I must content myself with briefly outlining the views now generally held.

Within a few hours after nerve-section the axis-cylinder swells at the cut end and becomes striated as the result of imbibition of stagnant endolymph. It then breaks down into isolated fragments, which, in part, are removed by leukocytes. The only histologic elements persisting within the sheath are the large oval nuclei, each containing one or more shining nucleoli, which are attached to its inner side. This breaking-down is usually completed within two or three weeks, and coincidently there occurs a degeneration of the motor terminal plates. Together, these changes constitute the so-called Wallerian degeneration;[1] but contrary to the teachings of Waller, we now know that this breaking-down does not result in permanent destruction of the distal segment. The persisting nuclei of the sheath of Schwann are true neuroblasts, which, after a varying length of time, multiply and become fibrillated, and, receiving a new investment of myelin, become the new nerve-fibers.

If, during this regeneration, the severed ends are maintained in apposition, a permanent histologic and physiologic regeneration is effected, the new nerve-fibers becoming continuous with or replacing those of the lower segment. If the ends are separated by a substance readily permeated by the nerve-granulations the result is the same; but if the intervening substance be a cicatrix, a slip of neurolemma, or other fibrous tissue, union is completely inhibited, and after a varying length of time a second and permanent degeneration is inaugurated. This is proved by the investigations of Bowlby and others, who have found the distal segments of severed nerves entirely without axis-cylinders years

[1] Handbook of Electro-therapeutics.

[1] Proceedings of Royal Society (Eng.), 1860–62.

after division. That this secondary degeneration is extremely slow and that it occurs only after a considerable interval, is shown by successful secondary suture of the ulnar nerve by Jessop[1] nine years after the injury; by Brenner,[2] of the median nerve after ten years, and by Tilloux,[3] of the same nerve fourteen years after it had been divided.

We have shown the importance of maintaining in apposition the ends of the divided nerve if one would secure regeneration. That this must be accomplished by artifical means must be evident, for it cannot fail to impress the most casual observer that the natural conditions do not favor such apposition. There is normally a retraction of from half an inch to an inch when the nerve is severed, and this, as I have already shown, is of itself usually sufficient to defeat permanent regeneration. When spontaneous regeneration does occur it is susceptible of but one explanation: either the nerve was not entirely severed or it is the result of an extremely fortunate accident.

Various retentive measures have from time to time been recommended, but the suture is and must be preëminent. It was first employed by Baudens in 1836, and revived by Nélaton and Langier in 1863 and 1864. Ignorance and superstition have done much to retard the general acceptance of this valuable procedure. There have been those who advised against its employment on the ground that it produced neuritis, epilepsy, lockjaw, inflammation of the skin, and other trophic changes. So recent a writer as M. Nicaise in *Ashhurst's Encyclopedia* advises against suture of severed nerves in simple wounds. These are just the cases in which it should be practised. A perfect and rapid recovery is practically assured if the primary suture is properly made; but if it is neglected, it is almost certain that suffering and deformity will follow, and that a secondary operation under far less favorable circumstances will ultimately become necessary. The moral and legal responsibility of the surgeon in these cases was well put by a commission appointed a few years ago by the Royal Belgian Society of Medicine and Natural Sciences to consider this subject. This commission reported to the Society that in its opinion "the surgeon who fails to suture a severed nerve commits almost the same fault as if he failed to reduce a fracture or bring together the ends of a severed tendon." In the light of the recent past it is possible to put the matter in stronger terms. The surgeon who neglects a severed nerve commits a greater fault than he who fails to reduce a fracture. Lack of attention to a fracture entails upon the patient deformity and limited usefulness of the part; a neglected nerve-wound brings all these, usually in an aggravated form, and besides, only too often, persistent and agonizing pain, loss of sensation as well as of motion, and distressing trophic changes.

Primary suture. As is indicated by the term, a primary nerve-suture is one used to unite a nerve within the first few hours following an injury, before any degenerative changes have taken place. Its results are very satisfactory. Bruns (in 1884) was able to collect 71 cases, of which 33 per cent. were successful. The writer has from all available sources been able to add to these 34 cases, of which 30 were successful, making a total of 104 cases, 77, or 74 per cent. of which were successful. Suppuration is as prejudicial to the early union of nerves as it is to that of other tissues, and hence it is of the greatest practical importance to secure in such wounds a perfectly aseptic condition, thus assuring primary union throughout. Such wounds should not be drained. A consideration of the reported cases shows that catgut, if properly prepared, is by far the best suture-material.

Secondary nerve-suture. The first secondary suture, we are told by Senn,[1] was made by Nélaton, in 1865. The operation was done in Germany by Simon and Langenbeck, in 1876. Bruns was able to collect 33 cases of secondary suture, of which 24 yielded a favorable result. I have been able to collect 75 additional cases of secondary suture, only 4 of which could be considered as failures; or, out of a total of 108 cases, the result was satisfactory in 95, or in 88 per cent. of the cases.

Finding the ends. If a nerve has been divided for some time, the ends are usually found imbedded in cicatricial tissue and separated to the extent of from one to three inches. The central ends are usually enlarged, and have frequently been mistaken by surgeons for true neuromata. It is often a matter of difficulty to find the lower segment, as it wastes, loses its color and firmness, so that it may readily be mistaken for a slip of fascia, a band of muscle, or a bloodvessel. Sutton,[2] from his experience with neurotomy in horses, describes a band of fibrous tissue which he found invariably to connect the two ends, and which he regards as a valuable guide in locating them. Bowlby and Timothy Holmes[3] think that such a band is but rarely found in man, although subsequent observers have found it sufficiently often to justify one in looking for it in every case requiring secondary suture.

Resecting the ends. It usually becomes necessary to freshen or resect the ends of the nerve in order to secure continuous nerve-tissue, which has been

[1] British Medical Journal, Dec. 2, 1872, p. 642.
[2] Wiener klin. Wochenschr., Jahrg. iv, No. 18.
[3] Reported by Reclus, physician and surgeon, 1887.

[1] Principles of Surgery, 1891, p. 63.
[2] Trans. London Clin. Soc., 1887.
[3] Loc. cit.

shown to be the prime requisite to the regeneration. The bulbous central end must be cut off and enough of the thin, frayed-out peripheral end trimmed away to give a good surface for approximation

Overcoming shortening. Various expedients are at times necessary to overcome the retraction or shortening of which I have spoken. Stretching, if not done with too great force, is often effectual in overcoming shortening of an inch or more. Létiévant[1] suggests that the defect be overcome by turning down flaps from the divided ends and suturing them in the middle, making a bridge of nervous tissue between the ends. No entirely successful results have thus far followed the application of this method. Glück[2] proposed overcoming these defects by nerve-grafting, a device that he employed successfully in animals. Tillemans,[3] Kaufmann,[4] and Robson and Ward[5] have since successfully carried out this suggestion in operations upon man. Robson and Ward transferred a piece of nerve from a recently-amputated leg in one instance, and in another a piece of the sciatic nerve from a rabbit. The latter was the method employed by Tillemans, while Kaufmann employed the sciatic nerve from a dog. Assaky proposed *suture à distance*, by which he means the interposition between the cut ends of an aseptic, absorbable substance like catgut, which may serve as a temporary scaffolding for the granulations from the nerve-ends, a method that has since been successful in the hands of Glück.[6] Létiévant[7] also suggests the idea of grafting the severed end upon the intact trunk of a neighboring nerve — a method that has proved partially successful. Bergmann[8] has resected the humerus to reach the same end, but this suggests cutting down a tree to pick its fruit. It has also been proposed to overcome the defects in the nerve by placing the extremities in either end of a decalcified bone-tube, closing the wound as in other reparative methods. If but a moderate defect exists, it can often be overcome by making the resection obliquely.

Results. Restoration of function must not be looked for immediately upon the operation of secondary suture. The first return of sensation may not occur until months afterward, and the operation cannot be said to be a failure unless there fails to be material improvement after the expiration of two or three years.

Operation. The operation of nerve-suture is easily described and simple enough—on paper. The ends, being found, are held by an assistant, while a catgut suture, threaded into a Hagedorn needle, is passed through first one and then the other nerve-stump about three-fourths of an inch from the end. The suture is then drawn just tightly enough to hold the ends loosely in apposition, when they are "whipped" together by fine catgut. Undue tension should be prevented by forced flexion of the part, maintained by a plaster or other rigid dressing.

[1] Traité des Sections Nerveuses.
[2] Virchow's Archiv, 1878.
[3] Berlin. klin. Wochenschrift, June 8, 1883.
[4] Rev. des Sci. méd., vol. xxiv, p. 305.
[5] British Medical Journal, September 13, 1891.
[6] Deutsche med. Wochenschrift, May 5, 1891.
[7] Op. cit.
[8] British Medical Journal, 1884, ii, p. 1085.

CASES.

CASE I.—J. R., a Swedish carpenter, aged forty years, was admitted to my service at Cook County Hospital during the summer of 1888, apparently in perfect health, except that the sensation and grasp of the right hand were sensibly impaired. He stated that he had first noticed a tingling or numbness in the hand six or eight months before, which gradually became more severe, and a few months later he noticed that the strength of his grasp was much diminished. The disability being a serious matter to him, as it interfered with his use of tools, he consulted a physician, who treated him for rheumatism. Becoming no better after several months' treatment, he sought admission to the hospital.

Examination: The power in the right hand is *nil*. Sensation is extremly blunted; the hand perspires freely and almost continuously; A. C. C. = K. C. C. He was ordered local injections of strychnine, gr. $\frac{1}{40}$, three times daily. Having a suspicion of the true nature of the lesion, I visited the ward at night and found him sleeping with his head resting upon the affected forearm. I wakened him, and instructed him to refrain from this habit, but twice again during the same night I found him in this position. Further treatment consisted in restraining measures and the continuation of the strychnine, under which there was complete recovery within a month.

This case, while properly foreign to the paper, is related as an example of the class of so-called "sleep or occupation palsies."

These are due to repeated contusion of a nerve or group of nerves, in some instances resulting from posture assumed during sleep, and in others, from pressure by implements aud the like.

Another frequent example of this form of lesion is the "crutch-paralysis," caused by repeated contusions of the brachial plexus by the crutch-head. So common are paralyses following a drunken stupor, during which the arm is allowed to hang heavily over the back of a chair, that in London hospitals these cases are familiarly known as "Saturday-night paralyses."

CASE II.—J. R., a clerk, aged twenty, was admitted to the hospital in the fall of 1888, the victim of a foot-bath. No convenient tub being at hand, he concluded to bathe his feet by standing in a stationary wash-basin. His weight broke out the bottom of the basin, and his legs, wedging into the

hole with great force, were cut through to the bone just above the ankles. The force of his fall broke the basin still further, allowing his knees to become wedged into the opening, again cutting through to the bone on both sides. The flexor tendons of both feet were cut and immediately sutured. A casual examination of the skin of the legs and feet detected no anesthesia. Union of the divided tendons occurred in about two weeks, when it was found that, on the left side, the area of the dorsum of the foot supplied by the anterior tibial nerve was anesthetic, and the muscles supplied by it were paralyzed. A dissection at the site of the lower wound exposed the nerve, seemingly intact, but perfectly flaccid. An exploratory incision was then made at the site of the higher injury, and the nerve, as it passes forward through the interosseous membrane, found to be intact. A further exploration of the lower wound now showed that the nerve had been cut at its extreme upper margin, permitting a separation of an inch and a half. These ends were freed from the mass of cicatricial tissue surrounding them, freshened, the foot firmly flexed, and the nerve sufficiently stretched to bridge the shortening, sutured with catgut, and the wound closed without drainage. Recovery was slow but uneventful.

CASE III.—A German waiter, whose name I do not now remember, fell during the early part of 1888, and, striking against a stone step, broke his left arm at about its middle, producing a compound comminuted fracture. This was wired by Dr. Price and primary union secured. Just as he was about to leave the hospital he began complaining of pains and numbness in the hand, followed shortly after by wrist-drop. The condition became progressively worse, and soon it was evident that the musculo-spiral nerve was either divided or being compressed. An exploratory incision showed the nerve to be intact, except that at the site of the old fracture it passed through a large mass of callus. This was chiseled away, a bed of muscle prepared for the nerve, and the wound closed without drainage. Recovery was complete in about nine months.

CASE IV.—Mrs. W., aged thirty-five, received a wrist-cut in an altercation with a neighbor, and when I saw her was almost exsanguinated, having sustained a wound of the ulnar artery and nerve. Within an hour suture of the nerve with catgut was practised, and the hand firmly flexed and dressed in plaster. Twenty hours from the time of the operation sensation had returned throughout the ulnar area. Motion was not restored until about the second month. The ultimate recovery was complete, and close examination is now necessary to detect the wounded wrist.

CASE V.—William P., a roller in the American Rod Mill, of this city, became entangled in a loop of one and one-eighth inch white-hot steel as it came from the rolls, and received a deep burn across the front of the left leg just below its middle, the steel burning into the cavity of the tibia, at the same time dividing the muscles, and the anterior tibial nerve and artery. There was also an extensive loss of soft parts over the front and inner surface of the leg, and the internal ligaments of the ankle-joint were burned away, laying bare its articular surfaces. With some difficulty the ends of the divided nerve were recognized, their charred extremities freshened and by gentle traction brought together and sutured by fine catgut. The other injuries sustained at the time resulted in a considerable loss of tissue, so that the wound had to heal by granulation, but union of the nerve occurred, with the return of sensitivity and motion throughout the anterior tibial area.

CASE VI.—About a year ago, J. G., a bricklayer, aged thirty-five, fell while walking over some boilers, striking with his full weight the point of his elbow upon the head of a boiler-rivet. He suffered severe pain in the forearm during the next hour or so, but after that time returned to his work. Though suffering considerably, he worked for about two weeks, when he was obliged to give up. After two weeks' rest he began again, but for the next six months alternated between rest and work, when he was obliged to give up altogether. On examination the arm above and below the elbow was found swollen and indurated; there was considerable limitation of motion; he suffered almost continuously from sharp, darting pains running from the elbow down into the forearm. The ulnar border of the arm was swollen and edematous, and the seat of excessive perspiration. There was some wasting of the muscles, and the grasp of the affected hand was about half that of the sound one. There was a slight evening rise in temperature and occasional chills. Under chloroform a four-inch vertical incision was made over the posterior surface of the joint, and the nerve, as it passes through the internal notch, was discovered imbedded in a firm cicatrix, and it was only freed after a troublesome dissection. Exploration in the region of the olecranon elicited indistinct fluctuation, and, upon cutting down, a pus-cavity was found involving the olecranon, the ulnar nerve forming a part of its inner wall. The compact layer of the bone was destroyed for about three inches, and the pus had burrowed into the cancellous tissue. The diseased bone was freely cut away, the cavity curretted, irrigated with a 1 : 4000 bichloride solution, the wound sutured, and the arm dressed in plaster. There followed an uneventful recovery, so far as the nerve-symptoms were concerned, and the man is now putting in full time at his trade.

As I have already stated, the pain following the incarceration of a nerve within the line of a simple fracture has in the past led to amputation.[1] The incarceration of any tissue within a fracture is, as I had occasion to show in a paper published last year in the *New York Medical Journal*,[2] very likely to inhibit union, and such incarceration is of itself a sufficient indication for operative relief. When

[1] Callender, Smith, and Sir W. Lawrence have made amputations through the leg for pain following incarceration of nerves within the line of fracture. Injuries and Diseases of Nerves, Bowlby, p. 259.

[2] Some Unusual Fractures of the Leg. N. Y. Medical Journal, Oct. 10, 1891.

that tissue is a nerve, and there is added to the probability of non-union the excruciating, agonizing pain which observers report in this condition, there can be no question but that immediate operative relief is imperatively indicated. Under such circumstances a surgeon should not hesitate, but he should cut down upon the fracture, release the incarcerated nerve, and, to make sure of perfect apposition, wire or nail the fragments.

Bowlby does not recognize in this condition an indication for operation, but it would seem that just here may be achieved the greatest advance over our predecessors.

It may be truthfully said that the surgeon has worked wonders in the department of nerve-injuries in the past, but by careful study, close application, and the exhibition of native ingenuity, the future gives promise of still richer rewards.

NOTE—*Sept. 1st.* Since reporting Case VI a secondary operation for osteo-myelitis of the ulnar shaft has been necessary. The *nerve* symptoms, however, abated altogether after the first operation.

AT WHAT AGE SHOULD THE FIRST TREATMENT OF CONGENITAL CLUB-FOOT BE INSTITUTED?[1]

BY H. AUGUSTUS WILSON, M.D.,
PROFESSOR OF GENERAL AND ORTHOPEDIC SURGERY IN THE PHILADELPHIA POLYCLINIC; CLINICAL PROFESSOR OF ORTHOPEDIC SURGERY IN THE JEFFERSON MEDICAL COLLEGE.

THE special feature of this meeting is the discussion of the treatment of club-foot, but such discussion would be incomplete without some consideration given to the proper time for the first treatment to be instituted in order to be most efficacious. Notwithstanding the absence of any well-authenticated reason, and often in direct opposition to well-established facts, a vast number of cases still go on to maturity with uncorrected, relapsed, or only partially corrected feet. That this is due largely to misconception as to the proper time to begin treatment, as well as to apparent want of knowledge of what that treatment should consist, is clearly understood by all orthopedists.

The general practitioners, however, often advise delay, or they overlook the necessity for appropriate treatment early applied and persistently continued. As accoucheurs should often direct the first treatment and decide as to the age at which it should be applied, it is important that they know the results of experience. In the table of cases reported by Dr. E. H. Bradford,[2] the age at which the cases were first seen by him is given as follows:

2	cases at	4 weeks	2	cases at	2½ years
1	"	7 "	4	"	3 "
2	"	2 months	11	"	4 "
10	"	3 "	12	"	5 "
2	"	4 "	6	"	6 "
1	"	5 "	4	"	7 "
7	"	6 "	1	"	9½ "
1	"	7 "	1	"	10 "
3	"	8 "	3	"	11 "
6	"	1 year	2	"	12 "
2	"	1½ "	2	"	15 "
1	"	20 months	1	"	18 "
10	"	2 years			

The experience of others is similar to the above, and I have quoted Dr. Bradford instead of referring to my own case-book. An explanation of the delay, shown in the foregoing statement, may be found in the indefinite and often misleading statements of accepted text-books and writers on surgery, from a few of which I quote. Ashhurst[1] says: "Mechanical extension should be resorted to in the third to the fifth week, not before the third week. . . . The best age for tenotomy is between the second and third month." J. B. Roberts recommends[2] "immediate correction by force, maintaining the position by gypsum bandage, and tenotomy after two months." Agnew[3] advises treatment "at an early period of life, but tenotomy not earlier than fourth or fifth month." Fisher[4] thinks that the most favorable time for tenotomy is when the child is six weeks old. Morton[5] urges manipulation from early babyhood, but condemns tenotomy before the child is able to walk. A. S. Roberts[6] states that "mechanical appliances should always be granted a fair trial before resorting to operation." Milliken[7] considers that the best time to do tenotomy is when the child would begin to walk, but he advocates the institution of manipulation at birth. Prof. Sayre[8] says "if prompt treatment were the rule, section of the tendons would rarely be called for, but should be resorted to when necessary." Gross:[9] "Age is no bar to tenotomy." Druitt:[10] "The earlier tenotomy is done after other treatment fails, the better." Ewens:[11] "No educated surgeon of the present day would, I imagine, allow an infant to reach the age of three months without tenotomizing every contracted tendon or putting on suitable apparatus; but it becomes a serious question how far one would be justified in allowing a child to grow up beyond the

[1] Read before the American Orthopedic Association, September 20, 1892.

[2] Trans. Amer. Orthop. Assoc., 1889, vol. i, p. 89.

[1] Ashhurst: Prin. and Prac. of Surg., ed. 1885, p. 686.

[2] Roberts: Modern Surgery, ed. 1890, p. 736.

[3] Agnew: Surgery.

[4] Fisher: Internat. Encycl. Surg., ed. 1888, vol. iii, p. 681.

[5] T. G. Morton: Tr. Am. Surg. Assoc., 1890, vol. viii, p. 71, 72.

[6] A. S. Roberts: Clinical Lect., Phila. Hosp., Nos. 1 and 11, 1886.

[7] Trans. Amer. Orthop. Assoc., 1890, vol. iii, p. 50.

[8] L. A. Sayre: Trans. Ninth Internat. Congress.

[9] S. D. Gross: System of Surg., ed. 1882, vol. ii, p. 1036.

[10] Druitt: Modern Surg., ed. 1887, p. 491.

[11] John Ewens: Brit. Med. Journ., Oct. 17, 1891.

age of three years when it is evident that the bony deformity is so great as to defy rectification by free tenotomy." Bryant[1] recommends manipulation and strapping a few days after birth, and tenotomy when necessary. He has operated at one week. Stephen Smith[2] recommends treatment as soon after birth as possible. Wyeth says:[3] "All forms should be treated from birth, and tenotomy determined by degrees of resistance." Moullin[4] urges that treatment be begun in infancy and that tenotomy be performed if manipulation, etc., fail. Schrieber[5] advises tenotomy as early as possible. Parker[6] says: "It may be laid down as a canon that treatment should be commenced immediately after birth, and that tenotomy is an essential feature of the treatment of many cases." Pye[7] says: "I believe that it will be found much speedier and a more satisfactory plan to recognize from the first that early tenotomy will give the best results." Bradford[8] says: "Treatment should be begun as early in infancy as possible; the amount of time gained by tenotomy is not great." Vance[9] begins treatment on about the tenth day by manipulation and retention apparatus and when that is not satisfactory divides the tendo Achillis. H. Hodgen[10] believes in the majority of cases in cutting the tendon and rectifying the deformity at once, not taking time to stretch the tendon. Steele[11] says of club-feet: "If they can be corrected without cutting, it would be far better." Keen and White[12] say: "The earlier the deformity is corrected and the foot held in the right position, the better; time may be saved by tenotomy."

A plan of treatment appropriate to one case or class of cases is often inadequate in others, and therefore treatment when referred to in this paper will mean the thorough correction of the deformity, its proper maintenance, and the application of measures having for their object the full establishment of the functions of the foot. In whatever degree the deformity may exist, attempt should be made at the earliest possible moment after birth to correct the deformity. The first day is none too soon, in my opinion, and the longer the delay the more difficult will be the recovery. In no case should plaster-of-Paris or fixed and immovable apparatus be kept on for more than one month, for their continuance tends to produce muscular atrophy.

In all cases passive motion, gymnastic exercises, friction, and the encouragement of motion in proper directions should be early instituted and persistently maintained. In all cases the form of apparatus selected should make elastic, in preference to rigid, retention, to enable the patient voluntarily to move the foot in the proper direction, but upon the cessation of muscular effort to restore it to its normal position. In cases of the first degree, or in which the deformity is easily corrected and the correction is easily maintained, operative procedure in infancy is rarely, if ever, necessary. In cases of the second degree, or in which the deformity is corrected with difficulty, and in which considerable restraining force is required, it is often desirable to cut through an open wound every soft tissue that restrains complete restoration, rather than depend upon their possible stretching under force. The first day is none to soon to resort to such operative procedures, but any time during the first month will usually suffice. In cases of the third degree, or in which correction cannot be accomplished without the employment of great force, more extensive operative procedures are necessary, and should be resorted to only after failure of tenotomy. In some cases I believe that early removal of the astragalus will enable the patient to adjust the muscles to the new circumstances and assist in developing them. The earliest age at which this is proper is, in my estimation, between the ages of one and two years. In cases that have been without treatment in infancy, or that have relapsed, numerous operations have been recommended and resorted to, the consideration of which is inappropriate in this paper.

I contend that it is not rational to wait until the doubtful assistance of walking can be had, because I believe that it is clearly proved that the earliest moment at which the deformed foot is thoroughly corrected the more satisfactory will be the ultimate result. During the period of one year or more spent in waiting for the child to walk the muscles will have adapted themselves in part to their abnormal positions; some will have become inactive and others over-active. This ultimate result, however, depends upon the completeness of the first correction, and as well upon the efficiency of the maintenance of the corrected position and the establishment of a correlation of muscular forces.

Relapses are the inevitable result of inefficiency on the part of those having the care or direction of the institution of the first remedial measures employed, and one of the prominent factors in these cases I have found to be delayed early correction. While it is improper to say that in all cases operative procedure should be resorted to or refrained from, I

[1] Bryant: Prac. Surg, ed. 1884, p. 817.
[2] Stephen Smith: Operative Surg., ed. 1887, p. 824.
[3] Wyeth: Text-book on Surg., ed. 1890, p. 811.
[4] Moullin: Treatise on Surg., ed. 1891, p. 355.
[5] Schrieber: Wood's Med. and Surg. Monographs, vol. ii, No. 3, p. 807.
[6] Parker: Congen. Club-Foot, ed. 1887, p. 85.
[7] Pye: Surg. Treat. Common Deformities of Children, 1889.
[8] Bradford: Treat. Club-Foot. Trans. Amer. Orthop. Assoc., 1887, vol. i, p. 89.
[9] Vance: Discussion, p. 115 Trans. Amer. Orthop. Assoc., 1889, vol. i.
[10] Hodgen: Ibid.
[11] Steele: Ibid.
[12] Keen and White: Text-book of Surg., ed. 1892, p. 342.

firmly believe that the rule should be adopted, and without exception, that complete correction should be accomplished at the earliest possible moment—during the first month, if possible—and that this correction should be accomplished by the employment of every rational means, whether this be operative, mechanical, manipulative, or gymnastic; but to be effective it must be complete.

I believe that the soft bones of the tarsus will alter their shapes as they are squeezed and compressed by force, and leave the shortened tendons as much contracted as they were before, because we know that, except by tearing, tendons rarely if ever yield, while cartilaginous bones, not yet ossified, will yield to pressure. I believe that on making an examination of many feet corrected without operation, but for which operations were indicated, no elongation of the tendons would be found, but an altered external appearance of the foot due to the softened condition of the bones, squeezed into an external appearance of correction. At the earliest possible moment, therefore, we should employ any method that will be necessary to correct deformity and that will prevent a return to the deformed condition. The first correction, no matter by what means accomplished, is but the means to an end. It is not only correcting the appearance of the deformity, but it is the correction of the mechanical defect, so that the mechanical functions may be reëstablished. The production of muscular atrophy, which is such a serious obstacle to the correction of club-feet after the period of infancy has passed, is a profoundly interesting subject, and I have but to refer to Chinese ladies' feet for evidence of what is too often done with club-feet.

The long-continued use of mechanical correction or restraining apparatus of any kind that does not provide for free ankle-motion will accomplish a muscle-atrophy just as successfully as the foot-binder. This muscle-atrophy is in turn followed by atrophy of the bones, not only in their diameter but also in their length. The natural tendency of a congenital club-foot is toward atrophy (from disuse) and increased deformity, and to avoid these we are, therefore, warranted in resorting to every means. The certainty with which, by judicious means, muscle-atrophy is corrected clearly indicates that if in congenital club-feet it cannot be entirely prevented, it can at least be arrested and controlled.

The length of time required to accomplish a full and complete correction of a congenital club-foot is the same as that required to form the foot of a normal child, and depends upon the age at which correction was obtained and the efficiency of the remedial measures employed. Not until the normally formed child is ten or twelve years old does the foot possess the normal mechanical conditions necessary for its full usefulness. All babies are flat-footed, many are naturally pigeon-toed, but all these conditions pass off so soon as the correlation of muscular forces establishes the mechanical functions. The same may be said of a child born with a club-foot, certainly in the milder forms: that until the age of ten or twelve years the correction must be maintained mechanically, and efforts must constantly be made to develop the muscular system; the longer the delay in establishing the normal functions the less likely will those functions be normal.

That which in the normal child prevents the foot from becoming deformed, although it may be placed temporarily in a deformed position, is the correlation of muscular forces, and this can and must be established in cases of club-foot that are corrected sufficiently early. The absurdity must be avoided of resorting to gymnastic forms of treatment, and at the same time destroying their efficiency by the use of mechanical restraining apparatus that not only prevents the reproduction of the deformity but at the same time restrains all motion. Thus I have seen rigid plaster-of-Paris and rigid steel braces in constant use in a case in which it was removed for half an hour every day, and during that time developmental methods were employed. The trivial gain by manipulation was irrevocably lost by the employment of an apparatus that kept every part of the foot immovable.

To accomplish a complete recovery there must be an understanding of the mechanical functions to be recovered; this is apparently wanting in those who postpone the application of rational treatment, or who simply cut tendons and allow the case to relapse by neglect, or who consider braces to be curative. The diversity of views as to the existence of bone-malformation will in part account for the existing differences of opinions as to the propriety of resorting to operative procedures early in infancy. Druitt[1] believes that in some cases the astragalus is quite normal, proving that bone-changes are not necessary to talipes. Erichsen[2] says that very little alteration has taken place in the condition of the bones. Power[3] states: "I am, therefore, led to suppose that the deformity is due entirely to bone-changes." Ashhurst[4] says: "In most cases bones of the foot are not altered in structure." Adams[5] maintains that in cases of varus the astragalus is malformed from the moment of birth. Morton[6] says: "Bones, especially the astragalus, are greatly deformed and

[1] Druitt: Modern Surgery, edtion of 1887, p. 491.

[2] Erichsen: Science and Art of Surgery, ed. of 1884, p. 579.

[3] Power, Arcey: Trans. Path. Society, London, 1888 and 1889, xl, p. 248.

[4] Ashhurst: Principles and Practice of Surgery, ed. of 1885, p. 686.

[5] Adams: Amer. Surg. Association, 1860, viii, p. 71.

[6] Trans. Amer Surg. Association, 1890, vol. vii.

unrecognizable after excision." Phelps[1] states: "Deformity of soft parts out of all proportion to the deformity of bone."

I am convinced that to a very large extent the changes in the structure of the bones often described are in large measure due to postponement of appropriate treatment. This may be accounted for in either of two ways: First, that observed in uncorrected cases in which the process of ossification progresses and the partially dislocated tarsal bones become permanently deformed to suit the abnormal position of the foot; and, secondly, in those cases of more or less marked severity where, to stretch shortened tendons, there has been recourse to mechanical force. In these cases the bones, whether deformed or not, yield to the pressure exerted and thereby become deformed, and ossify in their altered shape. In most instances both of these occurrences could and should have been avoided by the early recourse to operative procedures. It is not a question of saving time, but of perfect correction.

In conclusion, I would offer the following:

That full, perfect correction should be obtained during the first month.

That if correction is possible without recourse to rigid restraining-apparatus, tenotomy should be avoided.

That when perfect correction cannot otherwise be maintained without employing undue force, tenotomy, syndesmotomy, or cutting of fascia, should always be resorted to in the first month.

That in infancy tenotomy should never be resorted to without being followed by developmental as well as restraining treatment.

That it is misapplied mechanics to force a club-foot into a rigid restraining-shoe, and that doing so in the first months of infancy will produce ultimate bone-deformity.

That all apparatus employed in infancy should facilitate free motion in the proper—*i. e.*, normal—direction, and encourage the development of a correlation of muscular force.

All methods that employ undue force in correcting or restraining club-foot should be abstained from until the child reaches the age when the bones are completely ossified. The same period should be awaited before resorting to operations upon the bones.

ENLARGED TONSILS AND TONSILLOTOMY.

BY S. J. RADCLIFFE, M.D.,
OF WASHINGTON, D. C.

ENLARGED tonsils are not always due to frequent attacks of acute or subacute inflammation of those glands. They are often hereditary, and frequently congenital, as we find them in the first months of life or during early childhood, before any symptoms of acute inflammation have occurred.

In a table prepared by Mackenzie of 1000 cases seen by him at the Hospital for Diseases of the Throat, 84 were between one and five years of age, 181 between five and ten, or 265 under ten years; 382 between ten and twenty—or 26 per cent. under ten, 38 per cent. under twenty: in all, 65 per cent. under twenty; to which he adds that probably many of the cases in the earliest period were either congenital or made their appearance soon after birth.

Acute inflammation of the tonsil is rather likely to leave it atrophied, and it may be entirely absorbed after the first, the second, or the third attack, and there is no proof to sustain the assertion that the tonsils always remain permanently enlarged after an attack of tonsillitis—the result of thickening and induration of the parenchyma of the gland.

According to Mackenzie there can be no doubt that the tonsil is sometimes in a state of chronic inflammation, giving rise to permanent enlargement and multiplication of the constituent structures of the diseased part and to impairment of the function of the gland; but how often are we consulted in regard to these cases simply for the obstruction to respiration and deglutition, and the general discomfort caused by the enlargement, and not for any inflammation or pain intrinsically in the organ.

True hyperplastic enlargement of the tonsils is, without doubt, a diathetic disease, and arises from some constitutional fault, and most frequently that fault is exhibited in the form of struma—hereditary syphilis being also an important factor in the case. Though an attack of scarlet fever, measles, or diphtheria, or some other such microbic disease may apparently be the exciting cause in these cases, which appear later in life, there is the strongest probability that the groundwork of all such cases is in some constitutional taint.

The enlargement takes place at the expense of all the tissues of the gland—of the epithelial covering, mucous glands, lymphatic follicles, connective tissue, the vessels, and stroma. The enlargement occurs in the form of dilatation rather than induration—it is a hypertrophic dilatation and not enlargement with consolidation. It is not consolidation as in a fibrous tumor, firm and unyielding to the touch generally, but soft, elastic, and impressible. The hyperplasia or infiltration is due to caseation, to proliferation of diseased structure locally, *per se*, or to a general scrofulous diathesis, and is developed as in other tumid conditions of the lymphatic system, notably in the cervical region, as a local indication of a more general disease. With the enlargement the vessels become dilated

[1] New England Medical Monthly, February, 1891.

equally with the other portions of the structure—so much so, that while in a section of a healthy tonsil they may be almost invisible, in a section of the diseased gland they are easily seen, microscopically and macroscopically, with open lumen.

It is this dilatation of the whole structure of the gland, particularly of the vessels, that makes hemorrhage in tonsillotomy so immediately alarming. It is possible to occur in any case in proportion to the degree of dilatation. Hemorrhage in the cases noted cannot be considered to occur only in those cases of a hemorrhagic condition, in "bleeders" as they are called, but it is occasioned by or is the result of the enlarged, patulous vessels, giving a larger lumen or outlet, and freer exit to the stream of blood rushing to the gland from the internal carotid artery, and not usually, as many suppose, from severing of or injury to the carotid itself. Thus, while tonsillotomy may be a perfectly safe procedure in a non-strumous condition, it may be a dangerous, uncertain, or precarious one in persons in whom this diathesis coexists.

If we view the subject in this aspect, it would seem not to be difficult to distinguish the cases presented to us—those that might be, from those that might not be subjects for operation. This might be done by a minute inquiry into the history of the case, and a thorough subjective examination of all the symptoms presented or of all symptoms connected with the case, manifested or that may be elicited.

If the hypertrophy has existed from early childhood; if the patient has had uncertain or questionable health; if he has been subject to enlarged glands from slight causes, especially the cervical glands or the inguinal glands; if he looks pale, if his flesh is not firm, and if he is easily fatigued on moderate exertion—such information will help us in a measurable degree to make a diagnosis, and to decide in which of the categories to place the case and what remedial course to pursue. If, on the other hand, the enlargement is of more recent date; has occurred since manhood or adolescence, probably within the past few years, and following one or two attacks of violent acute inflammation in which the whole pharynx was involved, which had a definite course, but which only partially subsided after treatment, leaving the tonsils in a condition of subinvolution, with the pharynx still red and engorged; in a subject whose appearance indicates health and vigor, but who has been subjected to much exposure in cold and wet; or who has been addicted to excessive eating or drinking, resulting in a chronic gastric disturbance—we cannot go far wrong in viewing this picture in a very different aspect or in placing it in a position very different from the former.

Differentiating cases in this way, our therapeutic measures are of course made plainer, and we can see that while tonsillotomy would be proper and attended by no risk or apprehension of bad results in the latter group of cases, it would be, to say the least of it, imprudent, would incur great risk, and might be fraught perhaps with imminent danger to the patient in the former category. Having cognizance of all the surroundings, we can see at a glance that a line of reflection thus carried out leads us into the arena of operation fully prepared for any emergencies, and we need have no fear of present failure or unpleasant after-thoughts in regard to any misfortunes that may follow from misadventure.

It would follow, therefore, in view of the different conditions met with in enlargement of the tonsils, that tonsillotomy should not be performed indiscriminately, and the inference is apparent that the frequently sad, in some cases fatal results observed are the consequence of this indiscriminate and often hasty resort to operative means, taking the simple fact of the presence of so-called enlargement as a sufficient excuse for the procedure.

I do not know if this view of the subject has been generally thought over or has been considered worthy of serious reflection. In my opinion, however, the presentation of the matter, which is not at all strained, in its relation to diseased conditions and its association with complications that might be an index to its intelligent understanding and a guide in determining the amount or kind of remedial aid to be rendered, is in the line of progress, if it renders us more competent to deal with it and in a more rational manner.

THE TOXINES PRODUCED BY THE STAPHYLOCOCCUS PYOGENES AUREUS.

BY S. P. KRAMER, M.D.,
OF CINCINNATI, OHIO.

THE following is a report of the results of an investigation of the metabolic products formed by the staphylococcus pyogenes aureus carried on in the Biological Laboratory of the University of Cincinnati.

Two cultures were used; one kindly furnished me by Dr. Novy, of Ann Arbor, recently obtained from the blood of a child that had died of pyemia; the other a culture of two years' standing. No appreciable difference in result was recognized. A bouillon containing 1 per cent. of meat extract and 1 per cent. of peptone was used as a culture-medium. The germs were grown in Erlenmeyer flasks containing from 40 to 50 c.c. After remaining in the incubator at a temperature of from 35° to 37° C. for seven days, the cultures were passed

through Chamberland filters and the sterility of the filtrate established both by microscopic examination and inoculation upon agar.

This filtrate injected into rabbits produced no apparent symptoms. Thus, a rabbit weighing two pounds received 8 c.c. without effect. A daily injection of 2 c.c. during a period of seven days gave a similar result. This result was to be expected in view of the well-known resistance of the rabbit to this microörganism. The injection of four centigrams of the filtrate in the left forearm of the author was followed by marked local and general reaction. Five hours after the injection the temperature had risen from 98.4° to 99.8° F., pulse 96, accompanied by headache, pain in the back, flushing of the face,and general malaise. Locally,the point of injection was red, tender, and showed slight edema. Within the next eight hours the temperature returned to normal, some headache and malaise remaining during the succeeding twelve hours. The local inflammation increased during this time, but subsided completely after seventy-two hours, and was followed by slight desquamation. Another injection of 6 c.c. was followed by essentially the same symptoms, though to a less degree, a rise of temperature from 98.5° to 99°, pulse 90, slight headache, and a marked local inflammation.

From these experiments the conclusion was reached that the staphylococcus produced in its culture one or more chemical compounds which, when injected, gave rise to characteristic general symptoms and marked local irritation.

The next step in the investigation was the determination of the properties of these compounds, and, if possible, their location. When subjected to a temperature of 60° C. for half an hour the filtrate produced no general symptoms, even when large doses were injected. The local effect, however, remained unchanged. A quantity of filtrate was added to ten times its volume of absolute alcohol. A grayish-white precipitate resulted. This was allowed to settle to the bottom, the supernatant alcohol drawn off, and the precipitate repeatedly washed with 90 per cent. alcohol. After purification in this way the precipitate was dried in a vacuum at 33° C., and a light tan-colored powder was obtained.

This powder proved to be only partly soluble in water, but completely soluble in a 1 per cent. solution of sodium carbonate. A portion of this powder was then rubbed up with water and the insoluble portion separated by filtration. The filtrate was then thrown into ten volumes of alcohol; the resulting precipitate was re-dissolved and again precipitated with alcohol. After repeating this operation six times, and drying in a vacuum, a light grayish-white powder was obtained, albuminous in character, which, when injected, produced a very slight local and no general reaction. Another portion of the original powder was dissolved in a 1 per cent. solution of sodium carbonate. The injection of this in very small doses, *i. e.* (1 mg.) produced a very marked local irritation.

In all these experiments control-injections of bouillon were made, with negative results.

The insoluble alcoholic precipitate gave the following chemical reactions:

The light, tan-colored powder was incompletely soluble in water and dilute saline solutions. When water was added the powder became a seal-brown flocculent mass. It was completely soluble in a 1 per cent. solution of sodium carbonate; insoluble in alcohol and ether.

It was precipitated from its solution by alcohol, mercuric chloride, ammonium sulphate, and acetic acid.

It gave the biuret reaction, and with Millon's reagent behaved like a proteid.

It was not precipitated by heat, nitric acid and heat, sodium chloride, or sodium sulphate.

By virtue of these reactions the body is to be classed among the albumins. To which particular variety it belongs is not at present apparent.

As the result of this investigation the following conclusions may be drawn:

The staphylococcus pyogenes aureus produces toxic albuminous products of two kinds:

1. A readily diffusible substance, difficult of isolation, very susceptible to heat and chemical reagents, which, when absorbed in the human system, produces symptoms of general disturbance.

2. A less diffusible albuminous substance, not very susceptible to a temperature of from 60° to 70° C., or to chemical reagents, which, when injected in the human subject, produces at the point of injection a well-marked inflammation.

Christmas, working in Pasteur's laboratory, was the first investigator to take up this point. He obtained from bouillon-cultures of the staphylococcus pyogenes aureus, by the addition of alcohol, a precipitate that produced suppuration when injected in the anterior chamber of the eye and subcutaneous tissue of rabbits.

In the same way Brieger and Fraenkel obtained a toxalbumin insoluble in water, which proved fatal when injected in rabbits or guinea-pigs. On post-mortem examination of such animals they found the following changes: Intense inflammation at the point of injection, with swelling and reddening of the neighboring tissues; at times a purulent necrosis at the point of injection, which in some cases extended through the abdominal wall and gave rise to an antiseptic purulent peritonitis. The amount of toxalbumin injected by these authors is not

stated, but it must have been a very large quantity in order to produce such grave changes. I should judge that in these experiments the animals were killed by the violence of the local insult rather than by the absorption of any general toxic product.

My investigation would lead me to believe that the rabbit is proof against the general toxine produced by this germ, and that, moreover, the chemical operations employed in endeavoring to isolate it would destroy any toxic properties that it may have possessed.

There is one other point to which I desire to call attention—the therapeutic possibilities offered by these substances. If we take the sterile filtrate of staphylococcus cultures, and heat it for half an hour at 60° C., we have an irritant that I think will prove of considerable value. We have a counter-irritant that, when injected in very small doses, produces a well-marked irritation; in larger doses, almost a true erysipelatous inflammation. There are no dangers of general disturbance attending its use, there is no abrasion of the surface to become infected, and the effect to be produced is thoroughly within control.

If a ½ per cent. of carbolic acid be added to it the fluid will keep indefinitely, or, better still, a 1 per cent. solution of the alcoholic precipitate in 1 per cent. sodium carbonate solution could be used. Such solutions would be of great value, both as counter-irritants and as a means of hastening suppuration in furuncles, etc.

If, on the results of these investigations, it is permissible to construct a theory of suppuration as produced by the staphylococcus, it would be briefly as follows: The staphylococcus, during its growth in the tissues, produces a toxine that, when absorbed, gives rise to the general symptoms attending a local suppurative process. Furthermore, it produces a toxic substance that is highly irritant, and that possesses a strongly positive chemotaxis for the leukocytes. The duty of the local leukocytosis is twofold: First, by virtue of their phagocytic properties the leukocytes restrain the growth of the germ, and secondly, the local necrosis caused by their effusion enables the organism to discharge the bacteria, toxic products, and necrotic tissue present.

CLINICAL MEMORANDA.

REPORT OF TWO CASES OF PUERPERAL FEVER.

BY JOHN O. POLAK, M.D.,
CLINICAL ASSISTANT TO THE CHAIR OF OBSTETRICS, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; INSTRUCTOR IN PRACTICAL OBSTETRICS AND ASSISTANT TO THE CHAIR OF HISTOLOGY AND PATHOLOGY, LONG ISLAND COLLEGE HOSPITAL.

THERE is probably no disease so dreaded, alike by the profession and by the laity, and that has so vigorously resisted the assaults of thoughtful physicians, as childbed fever. It is not my purpose in this paper to attempt anexhaustive article on this subject, but simply to illustrate, by the aid of the cases that I have selected, the indications to be combated in the treatment, and how to meet them.

Acknowledgment of my indebtedness is due to Professor C. A. von Ramdohr, who, by his valuable counsel and timely suggestions, first led me to investigate this matter.

CASE I.—Jane R., aged twenty-one years, a primipara was born in the United States; her condition during pregnancy being excellent. The presentation was cephalic, and all the pelvic measurements were diminished three-quarters of an inch. She was delivered by forceps April 17th, after having been in labor twenty-one hours and twenty minutes. The indications for interference were as follows: Head engaged and stationary for three and a half hours; pains frequent, paroxysmal, but powerless; the fetal heart—which was heard on the left side four inches below the umbilicus near the median line—becoming arhythmic, and rapidly increasing from 140 to 180 pulsations per minute. The operation was performed under careful antisepsis, though the customary ante-operation vaginal douche was, by some mistake, omitted. There was a successful delivery of a living male child. The mother did well until the fifth day (April 23d), when, toward evening, she was seized with rigors, followed by a rapid rise in temperature to 102.6°; with a pulse 88, full, and bounding. The urine was high-colored and small in amount. The lochia were arrested, but there was no fetor. On careful palpation, there was no evidence of metritis or perimetritis. Some tympanitic distention existed; the tongue was heavily coated; there was frontal headache, and the face was flushed; the skin was hot and dry. Calomel (gr. v) was given, followed by dram-doses of magnesium sulphate every hour until free catharsis resulted. A milk-diet was prescribed. Quinine sulphate gr. xx, in a single dose, was given, to exclude the possibility of the fever being of malarial origin.

On April 25th I was asked to see the patient by my colleague, Dr. Gibbs. At that time her morning temperature was 104° in mouth; pulse 92 and compressible; a chill had recurred, and the expression was anxious; the tongue dry and very heavily coated. Still there was no evidence of local inflammation. The lochia were completely suppressed, though the involution had progressed correspondingly with the period of the puerperium. I had no doubt as to the case being one of general septicemia. The bowels had been moved freely by salines. No distention or tenderness of the abdomen was present. A vaginal douche of carbolic acid (5 per cent.) was given, and I advised whiskey, f ℥ij, every hour until the desired effect—*i. e.*, lowered temperature, improved pulse, skin and tongue becoming moist, was produced.

On April 24th. P.M., the temperature was 102.6°; the pulse 88, compressible; the tongue moistened about edges, but coated. Urination and watery movements had taken place. There was no tenderness over the uterus. The treatment was continued.

On April 25th, noon, the patient was seen by Dr. von

Ramdohr. The treatment was approved and continued. The patient looked more cheerful. The temperature was 100°, the pulse 100, very compressible; the tongue and skin moist.

On April 25th, 10 P.M., the temperature was 99.8°; the pulse 95, volume improving. The milk-diet was continued. The quantity of whiskey was reduced one-half.

On April 26th, the countenance was cheerful; the tongue clean and moist; the pulse 69, of good quality; the temperature 99°; the lochia reappearing, and without odor. There was no tenderness of the uterus. The whiskey was diminished to f℥j every three hours, and the milk-diet continued.

On April 27th, the patient was still improving rapidly; the pulse and temperature were normal. The diet was increased and stimulants were stopped.

On April 29th (eleventh day) the patient sat up for two hours.

CASE II.—Maria M., a primipara; born in the United States. There were umbilical hernia the size of an egg, and varicose veins of the legs and labia. Her condition during the present pregnancy was very poor from the effects of influenza last January, and improper and insufficient food.

This patient was delivered by Dr. E. D. Gazzam, on June 16th, by version. The indications for interference were as follows: The mother's temperature was 103.6°; pulse 140, dicrotic. There was inertia of the uterus: the head was not engaged; the os uteri was the size of a "double silver dollar." Here, again, most perfect antisepsis as to the operator's hands, arms, patient's external genitals, etc., was carried out, but the ante-operation vaginal douche was again omitted. A living male child was delivered. The mother's pulse was 116, of poor quality; the temperature 103° at the close of the operation.

On June 16th, at 11 P.M., the countenance was pale and anxious. Urination was practised in the recumbent position. The temperature was 99.8°; the pulse 92, rhythm and volume improved; after-pains existed and there was tenderness over the uterus. Milk-diet was ordered, and f℥ss of whiskey every three hours.

On June 17th, at 4 P.M., the countenance was pale but contented; she had slept two hours, and urinated; the lochia were free and sweet; the uterus was six inches above pubes; the temperature 99.8°; the pulse 84. Milk-diet and stimulants were continued.

On June 18th, at 9 A.M., the countenance was anxious. She had urinated and the bowels had moved. She had slept four hours; the temperature was 103.4°; and the pulse 120. The breasts were not secreting. The uterus was just below the umbilicus. Whiskey f℥j was given every hour.

On June 18th, at 3 P.M., the temperature was 104.4°; the pulse 140, very compressible, and of small volume; the tongue dry and coated; the facial expression anxious; there was headache; restlessness; the skin was hot and dry; the lochia suppressed; upon careful palpation no signs of local inflammation were present, except tympanitic distention of slight degree. I advised free catharsis by calomel, followed by dram-doses of magnesium sulphate every hour until a free watery movement was obtained, and that the amount of whiskey be increased to f℥iij every hour.

From this time convalescence began, and on June 27th the patient was sitting up and gaining strength.

From the foregoing cases, selected because of their typical histories, coupled with many other experiences, I draw the following conclusions:

First. That there are two forms of puerperal fever: sapremia, a local condition due to retained membranes, placental tissues, blood-clots, etc.; in which, because of exposure to the bacteria of putrefaction, ptomaïnes are developed, setting up a local inflammation. The other form is general septicemia, and occurs usually after the fourth day. This is a general condition, with few, if any, local manifestations, and is due to the absorption of the pus-organisms. This latter class of cases is illustrated by the foregoing histories.

Second. That septicemia will and does occur even when the most careful attention has been paid to the hands of the operator, instruments, and external genitals; from dislodgment of the bacteria in the vagina, either by hands or instruments, and so removing them from an acid secretion which renders them harmless to the alkaline secretion of the cervix, which acts as a culture-medium.

Third. That, in my experience, septicemia can be prevented, even after the most difficult forceps-applications and prolonged versions, by absolute antisepsis of the operator's hands and instruments; and, preceding the introduction of the hand or instrument into the uterus, by hot vaginal douches of mercuric chloride (1 : 3000) or creolin (2 per cent.). Again, after any form of instrumental interference whatsoever, it is my custom to throw into the uterus large quantities of carbolic solution (5 per cent.), or creolin (1 per cent.), having a temperature of from 105° to 110° F.; followed by plain hot water, and using a fountain syringe; and of late I have been leaving from 30 to 40 grains of iodoform in the shape of pencils, within the uterus, thus insuring continued asepsis. Another suggestion that is worthy of consideration in cases in which sepsis is feared is the use of copious hot enemata of Rochelle salts, or soap-suds immediately after labor, depleting the pelvic organs, and, consequently, proving valuable adjuvants in the prevention of sepsis.

Fourth. That in our treatment of septicemia, local interference, such as continuous irrigation of the uterus, is of little or no value, as there is a general infection, not a local inflammation. Pyrexia and asthenia are the conditions to be combated; therefore, our treatment must be general, not local, as in cases of sapremia. Whiskey, or any form of alcohol, in heroic doses will meet both these indications. The temperature will drop, the pulse improve in quality and diminish in frequency, the tongue and skin will become moist, and restlessness will diminish.

Fifth. That free catharsis with salines is a most important aid in the management of these cases, by reducing the temperature and relieving the congestion of the pelvic organs and peritoneum, which frequently exists.

In conclusion, let me say that septic fever in my opinion, is a preventable accident. Physicians too frequently ignore their responsibility, but the trouble can always be traced to some slip in the technique.

PURPURA RHEUMATICA FOLLOWING ACUTE SUPPURATIVE MASTITIS.

BY IRVING M. SNOW, M.D.,
LECTURER ON DISEASES OF CHILDREN, UNIVERSITY OF BUFFALO, MEDICAL DEPARTMENT.

THE following case of purpura rheumatica is of especial interest, for although its clinical picture corresponds very closely with that of the peliosis rheumatica of Schoenlein, yet the circumstance that acute articular pain and swelling and extensive subcutaneous hemorrhage appeared immediately after acute suppuration in the left mammary gland, point rather to the conclusion that the joint-symptoms and purpura were due to an acute microbic infection, and were not merely one of the phases of the rheumatic diathesis.

From the history of the case it would seem reasonable to infer that the same pyogenic bacteria that were responsible for the mammary inflammation, also gave rise to the series of symptoms to be narrated.

The patient, Miss R., was a spinster of seventy, an inmate of a home for old women. Her father and brother had suffered from rheumatic fever. She had herself had pain in the left hip-joint twenty-five years before, and in 1890 her left knee was swollen and tender for a few days.

In 1887, at the age of sixty-five, an acute abscess, of apparently spontaneous origin, developed in her left breast. The abscess was opened, and several ounces of pus were evacuated. Nevertheless, after the incision healed there remained in the upper and inner quadrant of the breast a considerable area of indurated glandular tissue, and from the left nipple there oozed a thin, purulent discharge, which, in time, gave rise to an eczema of the nipple and the adjacent skin. The left breast was the seat of a chronic abscess, with a sinus terminating at the nipple.

The patient was a stout, robust woman, of good temper and digestion. Her sight was imperfect from optic atrophy; but, excepting this, she had suffered little from senile decay.

She was, nevertheless, very much annoyed by the itching of the eczema of the nipple, and was tormented with the idea that the hard mammary lump was a carcinoma of the breast. As she utterly refused to have the breast laid open and the abscess evacuated, and was urgent for relief, I directed the nurse of the institution to syringe out the sinus once a day with a 50 per cent. solution of hydrogen dioxide.

This treatment was commenced on March 25, 1892. In a few days the woman began to complain of languor and dyspnea, and the breast became swollen and painful. On March 29th an abscess had formed in the inner half of the breast, which was now opened, and the abscess-cavity was irrigated with a boric-acid solution. A large area of indurated glandular tissue remained after the evacuation of the abscess-cavity.

For the next two days the patient was comfortable.

On April 1st she complained bitterly of pain in her lower extremities. Her toes, insteps, ankles, and knees were very much swollen. The tissues about the feet were the seat of a tense subcutaneous edema. The slightest movement of the ankles and knees caused the most intense anguish. I also found the feet, legs, and the posterior and external surfaces of the thighs thickly sprinkled with bright crimson spots, about a third of an inch in diameter. These discolorations did not disappear on pressure, did not itch, and were evidently hemorrhagic in character. There were no chills, no sweating. The temperature was 98.5°, the pulse 70.

Associating the articular swelling and purpura with the acute mastitis, and remembering with remorse that my antisepsis had been far from ideal, I imagined at first that I had to deal with a case of pyemia, with metastatic abscesses, an apprehension that subsequent events quickly dispelled. Quinine and iron were prescribed.

On April 2d the temperature was 98.5°, the pulse 70. There was no pain in the breast, but considerable discharge from the incision. The swelling and edema about the joints were much diminished. The purpuric spots remained unchanged. The ankles and knees were very painful.

I did not see the patient on the next day.

On April 4th the temperature was 99 5°, the pulse 90. The pus-cavity was still discharging. There was no epistaxis or tenderness of the gums. There was no pain or swelling of the knees or ankles. The dorsum and wrist of the left hand were, however, swollen and painful.

The woman was given large doses of sodium salicylate and sodium iodide.

After this, for several days, her condition improved in many respects. By April 6th the joint-pains had entirely ceased; the edema and swelling had disappeared, although the skin about the joints remained loose and flabby, from the rapid absorption of the effusion.

Coincidently with this amelioration in the general condition, the induration and discharge from the mammary abscess became insignificant.

From April 6th to 9th there was an absence of all symptoms; the purpuric spots had faded. On April 9th the patient felt able to walk about her room. This was, however, but a deceitful lull before a second and more severe attack.

On April 10th the woman was seized with vomiting and diarrhea; the stools were dark and watery. The sodium iodide and sodium salicylate were immediately withdrawn and bismuth subnitrate substituted.

On April 11th the patient continued to have numerous loose passages. The temperature was 98.5°, the pulse 90. The symptoms of purpura rheumatica again appeared. Both ankles and knees and the right wrist were swollen. About all of these joints, the feet and the hand, there was a tense edema, resembling the puffiness of dropsy, excepting that pressure left no indentation on the surface. The skin of the legs, thighs, and buttocks was sprinkled with innumerable livid blotches and papules about the size of peas. The patient seemed in great distress from the pain and tension of her joints.

On April 12th the patient was decidedly worse, sitting up in bed and groaning continually. The temperature was 99°, the respiration was 36, the pulse 100, full and receding. Her face was of a pale-grayish hue; the lips livid; the tongue was covered with a moist, brown coat. The swelling, edema, and pain in all of the affected joints, and in the subcutaneous tissues about the articulations, had become enormous. On the dorsum of the right hand were a few purpuric blotches. On the lower

extremities, in addition to the purpuric macules and papules that appeared on April 11th, there were large hemorrhagic discolorations, two or three inches in diameter, on the thighs, in the gluteal regions, and on the back. In fact, the skin in these regions was three-fourths covered with livid blotches, indicating that an extensive subcutaneous effusion of blood had taken place. The patient was given ergotin gr. j., morphine gr. $\frac{1}{60}$, every hour, and whiskey ʒiv, every three hours.

On April 13th, the woman slept well during the night. All pain, swelling, and edema had subsided; only the right tendo Achillis was still somewhat puffy. The livid hemorrhagic spots had become brownish in color. The temperature was 98.5°, the pulse 92, quick and receding. At the apex of the heart, and also at the second right intercostal space, a soft, systolic murmur could be heard. The gums were slightly painful when the teeth were pressed together.

On April 14th the temperature was 98.5°, the pulse 84. There was no pain or swelling in any joint, and the purpuric spots were fading.

From this time, Miss R. made a rapid and complete recovery, with no recurrence of the purpura or rheumatism. The cardiac murmur persisted for about two months, being probably caused by an endocarditis, as the patient quickly rallied and suffered neither from prostration nor anemia.

It is to be noted that the illness lasted fourteen days; that during this time there was neither chill, sweating, fever, nor albuminuria. Further, that the articular symptoms, pain and swelling, were identical with those of acute rheumatism, shifting from one joint to another. I have, however, never seen such extensive, tense edema about a rheumatic joint.

The purpura seemed part of the general systemic infection, appearing not only on the lower extremities but also on the right hand. The pain in the joints did not abate when the hemorrhage ceased, but continued to a distressing degree for a day or two afterward.

As to the nature of the joint-effusion in purpura rheumatica, it has long been settled that this is serous and not hemorrhagic. The swelling of the joints in the case reported disappeared in twenty-four hours—an impossibility if there had been blood effused into the joint.

It must be remembered that the recurrence of the articular pain and swelling, and the purpura, was preceded by an interval of three days of apparent health, during which the patient walked about. Perhaps the patient's imprudence in leaving her bed and walking about might explain the severity of the second attack.

Purpura rheumatica is described by Schoenlein as purpura occurring in a rheumatic subject. In our case there was certainly a family history of rheumatism, yet the patient herself had passed seventy years with but slight evidence of a rheumatic diathesis.

The pathology of both rheumatism and purpura, whether they exist separately or together, is still obscure. Why, in a certain number of cases, the clinical picture of acute articular rheumatism should be so changed that the important symptoms of fever and sweating should be lacking, and be replaced by recurring hemorrhages under the skin, is a question that is unsatisfactorily explained by Schoenlein.

With Miss R. the sequence of swelling of the joints and purpura upon acute suppuration in the breast was too close to be mere coincidence. We have first, as a result of irritating injections, an acute glandular abscess, due undoubtedly to bacterial infection. In connection with the development of the abscess the patient has an attack of purpura rheumatica. It is to be regretted that no bacteriologic examination was made of the blood, yet the conclusion is irresistible that the whole illness, swollen joints and subcutaneous hemorrhages, was due to a general microbic infection from the suppuration in the left mammary gland.

371 PORTER AVENUE.

HOSPITAL NOTE.

A CASE OF TRANSPOSITION OF THE VISCERA.[1]

BY ALFRED HAND, JR., M.D.,
RESIDENT PHYSICIAN OF THE CHILDREN'S HOSPITAL, PHILADELPHIA.

THE patient, M. H., female, aged eight years, was admitted August 12th. Her illness began one week before admission, with evening fever. On admission she was very weak, and had a temperature of 102.2°. Examination revealed a lobar pneumonia, involving both lower lobes. The dulness on percussion was marked on both sides posteriorly; on the left it extended around the side and in front, from near the nipple to the costal border (L in the illustration), covering the area in which the tympany of

the stomach is usually found; the dulness on the right, posteriorly, was not of large area and did not extend anteriorly, the usual area of liver-dulness being tympanitic (T in the illustration).

The apex-beat was felt in the fifth interspace, just within the nipple-line of the right side, too low down for that of a heart displaced by a left pleural effusion. The existence of an effusion was also excluded by the clear signs of pneumonia. There was *distinct* bronchial breathing over an immovable area of dulness, corresponding with the lower lobes of the lungs, with vocal resonance and fremitus increased. Further, the liver could be palpated just below the edge of the ribs on the

[1] Service of Dr. Arthur V. Meigs.

left. The case also presented the typical pneumonic flush over the cheek-bones. The fever ended by crisis on the third day after admission; the *râle crepitans redux* and the sub-crepitant râles of resolution were soon heard, and the patient was discharged cured eighteen days after admission. She has since been kept under observation, all signs of the pneumonia have disappeared, and repeated examinations have shown clearly that the viscera are transposed. The child apparently suffers no inconvenience from the abnormality, as she is now in very good health.

MEDICAL PROGRESS.

Symptoms like those of Cholera from Streptococci.—BECK (*Deutsche medicin. Wochenschr.*, 1892, No. 40, p. 902) has reported the case of a woman, forty-four years old, who, at a time when cholera was not prevalent at Hamburg, but was being looked for, presented symptoms quite indistinguishable from those of true cholera. The stools were, however, of acid reaction, and the presence of cholera-bacilli could not be determined, either by microscopic examination or by culture-tests. Only streptococci could be found. The case progressed to a fatal termination. At the autopsy rigor mortis was marked, and the muscles on section appeared dry. The spleen was small and soft. The liver was anemic, but otherwise unchanged. The stomach contained thin, yellowish-brown, feculent liquid. The mucous membrane was pale, but at the fundus was a small area presenting minute hemorrhages.

The mucous membrane of the duodenum was intensely red at the summits of the folds of the bowel, the redness becoming gradually less pronounced, and ceasing at about the middle of the small intestine. Peyer's patches and the solitary follicles were not perceptibly swollen. The contents of the bowel consisted of thin, yellowish-brown, bile-stained, pea-soup-like liquid. The cecum and large bowel presented no changes. The mesenteric glands were small and pale. Bacteriologic examination of the blood taken from all of the organs disclosed the presence of comparatively thick and long streptococci, resembling those cultivated from the stools. The organisms proved pathogenic to mice, in whose blood they could be found. The organisms grew in bouillon, rendering the culture-medium turbid, and forming long filaments. On agar they formed fairly large, flat colonies. They grew in gelatin beneath the surface, forming chains. The contents of the gastro-intestinal tract were examined for arsenic, but none was found.

Implantation of the Ureters into the Rectum.—As the outcome of an experimental study, REED (*Annals of Surgery*, vol. xvi, No. 3, p. 193) concludes that unilateral implantation of the ureter into the rectum is a possible and a practical surgical procedure. Bilateral implantation of the vasa deferentia into the rectum is not followed by any serious or detrimental results, further than the induction of sterility. Simultaneous implantation of both ureters into the rectum is still a questionable surgical procedure. The presence of the urine, with the feces, in the rectum does not occasion pathologic irritation of the latter. The passing of frequent liquid stools cannot be considered as resulting from the implantation of the ureters into the rectum, with the presence of urine in that part of the bowel. It is probable that a portion of the water of the urine passed by the bowel is absorbed, leaving the salts to be eliminated with the feces. The ligation of one ureter and the consequent production of hydro-nephrosis is not necessarily followed by inflammation and destruction of the wall of the ureter or of the substance of the kidney; it may be that the secreting function of the kidney is arrested or that the natural physiologic process of elimination is reversed, so that absorption takes place.

Cerebellar Hemorrhage in a Boy.—BARLING (*Birmingham Medical Review*, October, 1892, p. 223) has reported the case of a boy, ten years old, who, it was stated, had fallen a distance of four feet. The boy appeared faint and collapsed. He complained of great pain in the left side of his head, but could give his name. Subsequently his face became blue and his breathing infrequent and shallow. Life was sustained for a short time by artificial respiration, the heart continuing to beat; but death eventually ensued. At the autopsy there was no external evidence of injury to the skull, no hematoma, no fracture. On opening the calvarium and removing the dura mater, the pia was seen to be slightly congested, with slight hemorrhage in the course of the vessels. There was also slight hemorrhage into the membranes over the pons and medulla. The fourth ventricle was filled with clotted blood, which extended into the third and lateral ventricles. The middle lobe of the cerebellum was torn up by an extensive hemorrhage that in less degree involved the lateral lobes as well. The vessels at the base of the brain were healthy and there was no aneurism or thrombosis to be detected. All the other organs appeared normal.

A Fatal Case of Gonorrheal Septicemia.—RUGG (*Lancet* No. 3605, p. 772) has reported the case of a man, sixty-two years old, who presented himself on the third day of an attack of gonorrhea, which responded to astringent and antiseptic injections. Two days later there was complaint of pain in the back; on the following day there was great pain at the right wrist, shoulder, and knee, and pain of less degree upon the left side; later in the day the right wrist became inflamed and much swollen, and there was considerable effusion into the right knee, without redness. The left ankle became red and swollen, and the left wrist painful but not swollen. The soles of the feet were painful to touch. The conjunctivæ and sclerotics were injected. The patient was given potassium iodide and opium, and appeared to improve. On the tenth day after the discharge had begun he became somnolent, then comatose, and finally died, the temperature rising to 107° an hour before death.

Anus Preternaturalis.—To obviate the difficulties attendant upon suture of the bowel in the establishment of an anus preternaturalis, CHAPUT (*Archives Gén. de Médecine*, October, 1892, p. 442) recommends the substitution of serre-fines or hemostatic forceps for sutures. After the induction of local anesthesia by injections of cocaine, the necessary incision is made and the bowel

is brought out of the abdominal cavity with a pair of artery-forceps; eight serre-fines or hemostatic forceps now grasp the bowel, the peritoneum, and the deep layer of muscle at as many points. The loop of bowel is irrigated with a solution of zinc chloride 1 : 10, and an incision of three-fifths of an inch is made in it. The lips of this incision are kept apart by a catgut suture on either side, and an antiseptic dressing is applied. The hemostatic forceps or serre-fines are removed at the end of twenty-four hours. The method has been successfully employed in four cases.

Death from the Presence of Ascarides in the Bowel.—HILLYER (*Lancet*, No. 3605, p. 773) has reported the case of a girl, five and a half years old, who, previously in good health, had the day before complained of severe abdominal pain. A dose of castor oil was administered but at once rejected, together with three round-worms. The bowels failed to move, but the vomiting was not repeated. It was not known that worms had been previously passed. The child lay on her back, half-unconscious, moaning occasionally, with eyes wide open and pupils dilated. The conjunctivæ were almost insensitive; the skin was cold and clammy; the temperature, taken in the rectum, was 99.8°; the pulse was imperceptible at the wrists; the apex-beat of the heart was fluttering and difficult to count. Three grains of santonin and three grains of calomel were administered, but the child died ten minutes later. At the post-mortem examination, the small intestine was found slightly distended down to a point fifteen inches above the ileo-cecal valve, where a collection of forty-two round worms was found, eight of which were rolled together in a solid mass, occluding the bowel. There was no perceptible narrowing of the gut at this point, and no intussusception. The mucous membrane of the bowel was intensely congested. The peritoneum covering the small intestine was slightly congested in patches. The opinion is expressed that the symptoms and the fatal termination were dependent upon the irritation occasioned by the presence of the worms, rather than upon obstruction caused by them.

THERAPEUTIC NOTES.

The Treatment of Dysentery.—GRUET (*Bull. gén. de Thérap.*, No. 28) recommends the employment of sodium sulphate, in conjunction with intestinal antiseptics, in the treatment of acute dysentery. Two drams and a half of the salts, in six ounces of water, together with seven and a half grains of naphthol, are taken in four doses in the course of twenty-four hours, at intervals of three hours. The treatment is to be continued until the stools have resumed their normal character and consistency. If the naphthol is not well borne it may be replaced by salol in suitable doses. At the same time the bowel is irrigated with a 2 per cent. solution of boric acid, followed by naphthol, 1 : 4000, or carbolic acid, 1 : 2000. The injections should be continued for a week after all the symptoms have been absent.

Infusion of Pilocarpus for Hiccough.—NOBEL (*Centralbl. f. klin. Medicin*, No. 32) has reported the case of a soldier, twenty-one years old, with extensive bronchitis following influenza, in which severe and obstinate hiccough suddenly set in, so that the man became almost exhausted and cyanotic. The symptoms were speedily relieved by the administration of an infusion of the leaves of pilocarpus, five parts to two hundred of water, taken almost *ad libitum*.

For Acute Coryza.—

℞.—Acid. tannic.	gr. iij.
Acid. salicylic.	gr. vj.
Salol	ʒss.
Acid. boric.	ʒij.—M.

S.—At the onset of the attack, a pinch should be snuffed in each nostril every hour for not longer than twelve hours. If it be desired to continue the treatment, talc or more boric acid should be added, or the proportion of salol reduced half or quarter.

CAPITAN, *L'Union Méd.*, No. 116.

For Ozena.—

℞.—Acid. thymic.	gr. vj.
Acid. salicylic.	gr. xv.
Acid. boric.	ʒjss.
Salol	ʒijss.
Pulv. talc	ʒiv.—M.

S.—As a nasal insufflation after preceding irrigation with carbolated water. *L'Union Méd.*, No. 117.

The Treatment of Ozena.—At the recent meeting of the French Society for the Advancement of Science MOURE reported the successful employment in a considerable number of cases of ozena, by means of sprays, of a 10, 15, or 25 per cent. solution of argentic nitrate and of zinc chloride, from 2 to 10 per cent. The spray is to be employed daily, or on alternate days, in accordance with the severity of the disease.—*Wiener medizin. Presse*, 1892, No. 41, p. 1640.

For Typhoid Fever.—RICHARDSON (*Asclepiad*, 3d quarter, 1892, p. 255) recommends:

℞.—Methylene bichloride . . .	ʒj.
Solution of hydrogen dioxide (10 volume)	℥j.
Dilute hydrochloric acid . .	♏xxx.
Distilled water . . . ad	℥vj.—M.

S.—A tablespoonful every three hours.

For Hemorrhoids.—

℞.—Iodi pur.	gr. iv–xvj.
Potassii iodidi	℈ij.
Glycerini	℥j.—M.

S.—Apply topically every three or four hours by means of absorbent cotton, after having previously taken a hot sitz-bath. PREISMANN, *L'Union Méd.*, No. 112.

Phenacetin as a Topical Application.—LEE (*Memphis Med. Monthly*, 1892, No. 10, p. 481) reports the successful employment of phenacetin in powder as a topical application to ulcers of various kinds. It is thought the agent acts as an anesthetic, an antiseptic, and a stimulant.

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SATURDAY, NOVEMBER 12, 1892.

THE DIFFERENTIATION OF GLUCOSE FROM OTHER ALLIED CARBOHYDRATES OCCURRING IN URINE.

IT would seem that the life of the clinician who would attempt to keep at all abreast of the times must be devoted largely to the unlearning of things that he has been taught to regard as unassailable facts. Verily, *Difficultatem facit doctrina.*

It is not so very long since it became generally known that glycosuria frequently exists independently of diabetes, just as albuminuria as often as not has its origin in lesions other than renal. And, while nowadays nearly every practitioner is conversant with the ordinary reduction-tests that are used for the detection of the presence of grape-sugar in the urine, there are probably few that appreciate sufficiently well the fact that other allied carbohydrates at times occur in the urine which are just as capable of reducing the metallic salts as is glucose. The numerous sugars of the glucose group are chemically aldehydes, and the power of reducing ammoniacal solutions of silver salts and of cupric compounds is not peculiar to glucose or to the glucose series, but is a property common to all those chemical bodies that contain the particular atomic grouping characterizing the aldehyde molecule.

The differentation of these sugars by the more delicate methods of the chemical laboratory would be scarcely practicable for the every-day physician, so that the need of a series of simple tests that will enable him to decide in any given case whether he is dealing with glucose, maltose, or lactose, becomes at once apparent.

The familiar test of TROMMER is perhaps the easiest to apply as an ordinary procedure when it is suspected that the urine may contain sugar, but it can only be regarded as *safe* for glucose when the precipitation of cuprous oxide occurs *before* the solution boils. The bismuth test of BÖTTGER, especially with NYLANDER'S modification, is sharp and usually safe, but cannot be relied upon if the urine contain albumin, melanin, melanogen, or the coloring matter of rhubarb.

The fermentation-test deserves to be more widely used than it is at present, as it is easily carried out with the aid of the small tubes devised by SALKOWSKI, EINHORN, and MORITZ. If one obtain a positive result there is evidence of the presence of some body that is capable of undergoing fermentation; but this may be glucose, galactose, maltose, or levulose; or if the yeast contain fission-fungi, the uric acid may be split up with formation of carbon dioxide as one of the end-products.

The phenylhydrazin test, as first applied by VON JAKSCH, has been steadily gaining favor, and recently with certain additions has been recommended by its originator as one of the best means of differentiating between the members of the glucose group (*Prager med. Wochenschr.*, 1892, No. 31). Glucose forms with phenylhydrazin an insoluble combination, to which FISCHER has given the name phenylglycosazon, a compound that crystallizes in characteristic, yellow, radiating needles, which have a melting-point of 205° C. The test is by no means so difficult as at first appears, and is already used by many clinicians in this country.

VON JAKSCH claims that the combined use of the tests of TROMMER and NYLANDER, supplemented by the phenylhydrazin reaction, with determination of the melting-point of the crystals obtained, and by the tests of fermentation and polarization, will suffice to demonstrate the presence of even minute quantities of sugar, and also to decide as to the particular kind present.

In certain diseases of the pancreas maltose has been found in the urine. This body deflects the ray of polarized light more strongly to the right than does glucose, and, furthermore, is distinguished

by its property of reducing the metallic salts when sulphuric acid is added and the mixture warmed; besides, the maltosazon crystals that are formed when the phenylhydrazin test is applied have a melting-point 16° lower than those of phenylglycosazon, and on microscopic examination are quite different in appearance.

Milk-sugar in urine reduces the copper and bismuth salts, but is easily recognized in that, with the fermentation-test, the reaction is negative, or only feebly exhibited, while, with the quantities in which milk-sugar is found in urine, no crystals of phenyllactosazon are formed. Should they be formed they may be distinguished by their microscopic appearance and by their melting-point, which is 200° C.

Levulose or fructose reacts in every respect as does glucose, except that it deflects the ray of polarized light to the left.

The peculiar sugar described by LEO presents no difficulties in differentiation, as there is a difference of 1.6 per cent. in the results obtained by titration and polarization. Again, this body does not undergo fermentation, has feeble reducing powers, and, moreover, forms a fluid combination with phenylhydrazin.

Another point is of interest. One sometimes meets with urine poor in dextro-rotatory glucose, and rich in levo-rotatory β-oxybutyric acid, and in such a case the deflection to the right by the glucose may be neutralized or even more than compensated for by the action of the acid.

If a urine of this kind has responded to all other tests for glucose, the appearance of a more or less marked deflection to the left after fermentation is sufficient, aside from all special tests for β-oxybutyric acid, to demonstrate the presence of a dextro-rotatory substance capable of undergoing fermentation, this substance being in all probability glucose.

The test of BAUMANN, which depends upon the precipitation of the carbohydrates with benzoyl chloride and potassic hydrate, is regarded by VON JAKSCH as unsatisfactory and impracticable, partly on account of the confusing furfurol color-reactions, and partly from the difficulty of obtaining the pure sulphuric acid required for the second part of the test.

We can think of no more interesting field of research than that offered by a continuation of these studies with regard to the appearance of carbohydrates in the urine and the exact nature of the disturbances of the normal metabolic processes of which the carbohydraturia is the expression.

It is through the careful study of the causes of the transitory and comparatively insignificant saccharine conditions of the urine that we may perhaps hope for the ultimate solution of the absorbing problem—the pathology and pathogenesis of diabetes mellitus.

MERCANTILE MEDICINE.

IN reference to the character of the advertisements admitted to the advertising pages of a medical journal there must necessarily obtain a certain measure of latitude of individual opinion. There are all grades and degrades of admissibility and of non-admissibility. Every publisher, with whom the responsibility of course rests, must decide the matter for himself. Just as a lay journal must reject the worst, unless itself be the worst sort of journal, so must a medical journal, unless of the worst sort, reject the most disreputable medical advertisements. The ideal standard of editorial supervision of advertisements cannot be even inaugurated so long as the medical profession is content to allow its journals to be published by private and non-professional enterprise. Unless controlled and supported by the profession, the profession may not dictate to the publisher what he may admit to or reject from the advertising pages. It may condemn, but not dictate.

It is, of course, different with the reading columns. These are—or, alas! that we must add, these *should* be—under the control of a physician, and the profession has a right to demand that no one of its members, acting as editor, shall allow a line in the reading columns of his journal to be tainted with bribe or disgrace.

The rule that a self-respecting, or even a shrewd publisher will follow will be to admit nothing to the advertising pages that is opposed to the true interests and progress of medicine, and that in the eyes of the majority of the better class of physicians is frankly unprofessional.

All this is equivalent to saying that the responsibility rests at last with medical men. If they will, they can control both the editor that prostitutes his reading columns and the publisher that sells his advertising pages to whomsoever will buy.

One further distinction should be made: Of a medical journal published by non-professional enterprise, there may not be demanded that high

standard of exclusion of semi-disreputable advertisements that is rigorously called for in a medical journal edited by a corps of brilliant professional leaders, presumably and ostensibly in the sole interest of medicine, and published by, with the sanction, or under the control of a great medical and educational institution.

And now we wish to ask the PROVOST AND THE OFFICERS OF THE UNIVERSITY OF PENNSYLVANIA, the publishers of the *Annals of Surgery*, and MESSRS. PILCHER, TREVES, WHITE, and MACEWEN, editors of the *Annals*, if each and severally they consider the admission of a sixteen-page advertisement appearing in their November issue a proper and a professional thing to do. From Western daily lay newspapers we have during the past year heard much of this same "cure"; it is a secret proprietary preparation, and it claims for itself that it is an "absolute cure" for diseases that kill and afflict something like one-half of the human race. Is this proper stuff to appear in the advertising columns of any but such "medical journals" as are plainly in the auction market to sell themselves for anybody's money?

Warning its readers, the *St. Louis Medical and Surgical Journal*, with an apparent over-modesty and caution, says of the bribe offered to itself (and a splendid one it was, of course, financially) that "it does not need money as badly as that, yet," but that the *Maryland Medical Journal* and the *Medical Brief* did consent to sell "their manhood and respectability (*sic!*) for the mess of pottage." We are in the same boat, good neighbor, and we are moreover glad to know that we row with the same *sculls!*

And neither the affidavits, with the addresses of the three hundred "physicians" appended to the advertisement, nor those of the "ten thousand" others claimed, alter, but rather most strikingly confirm our conviction that the whole affair is another sad evidence of the seriousness and virulence of the parasitic disease afflicting the American medical profession.

MEDICAL BOARDS AND TRUSTEES OF HOSPITALS.

ALTHOUGH the advice *ne sutor ultra crepidam* has been handed down through the ages, a very large majority of men that are in most things as intelligent as the average consider that in many medical matters what they are pleased to term their "common sense" and "business judgment" are on a par with the experience and education of the physician, who for some mysterious reason is assumed to be devoid of, or lacking in, those mental qualifications that are the endowment of the successful tradesman. That such an impression exists is not altogether the fault of laymen, for it has been a matter of experience that physicians themselves are largely to blame for the patronizing attitude that is often displayed toward them.

Some time ago, in one of the New York hospitals, there was a conflict of authority between the medical board and the trustees, so the press informed us, to determine whether the medical board was "to govern the institution altogether, or whether the gentlemen who contribute to its maintenance were to have something to say." The friction seems to have arisen because the medical board filled a vacancy in the house-staff without consulting the trustees, and because the board failed to discipline a member of the house-staff as the trustees, in their presumably superior wisdom, deemed meet and proper. In this particular institution the charter gave the medical board absolute control over the medical affairs of the hospital, while the trustees desired to usurp this control *vi et armis* on the ostensibly highly ethical principle that "if a member of the hospital staff misbehaved himself, that particular hospital was not the place where he could remain." In this hospital, as in most similar institutions in large cities, the members of the medical board were among the foremost physicians; most competent to judge of the qualifications of a candidate for the house-staff, and well qualified to administer efficient discipline to a delinquent, so that the imputation of the trustees was but a gratuitous insult.

On the one hand, we have a number of physicians whose names, as officers of the institution, give it prestige; while, on the other hand, we have some eminently respectable persons whose chief claim to prominence is a rating in *Dun's* or *Bradstreet's*, and whose only opportunity to let their "light so shine before men" that their good deeds may be seen is to get these medical gentlemen to act as their almoners. If the latter refuse to comply with the evident desire of these humanitarians to couple servant with almoner, where would be either these philanthropists or the institutions that they support? The successful administration of the army, navy, marine, and many civil and

private hospitals throughout the country that are under the complete management of physicians, demonstrates beyond peradventure that boards of trustees are supererogatory, while we are not aware that experience has yet shown that physicians can be dispensed with.

The fact that, in this particular case, it has been paraded that if the medical board resigned the trustees could easily fill their places, is unfortunately and lamentably true. Past experience has shown that when the action of trustees of eleemosynary institutions has forced the members of the medical staff to resign, the places of the latter were almost at once filled by other physicians, who sold the birthright of their professional independence for a mess of place-holding pottage.

While awaiting that millennium in which physicians will refuse to accept vacancies so created, and thus stultify the dignity of their calling by yielding up, *ad illiteratas*, authority over matters that properly belong to themselves, we can only urge that medical men will seriously consider the advisability of not connecting themselves with new institutions in which the charter does not expressly vest them with authority over the medical affairs. Render unto the trustees the things that are the trustees', and unto the medical staff the things that are the medical staff's; as a committee on ways and means the trustees will have abundant occupation, and the judgment of the medical staff will safely administer the *res medicæ* of the institution.

SELECTIONS.

THE DUTY OF MEDICAL JOURNALS.

THE prescribing of substances of which the prescriber is totally ignorant as to their exact composition should be condemned absolutely by all those who have medical science and the good of mankind at heart.

Only those things that are fully understood, so far as our clinical and physiological knowledge has made clear, can be considered as safe and scientific to administer.

Every medical journal should demand, in each instance, more exact and positive statements than are now obtained regarding the nature of many substances, even within the sanction of the Pharmacopeia.

When this is done, the manufacturing chemists will make still greater exertions than hitherto to satisfy this demand for positive knowledge; but so long as the profession will accept vague and verbose statements as declarations of scientific facts, there is but little motive to force deeper investigation.

When this demand for definite information becomes a common practice, our knowledge will become more exact, and therapeutics more certain. There will be less inclination to use those much-vaunted compounds of unknown composition that are so often guaranteed to "cure the incurable."

At the same time every medical journal should condemn with equal vigor, both in its reading-columns and its advertising-space, everything which tends to make medicine more blind and uncertain. Only those things should be admitted that intelligibly explain themselves.

When this practice becomes somewhat of a universal rule, empiricism will of necessity give place to a true and exact state in medical science. Quackery will steadily and irresistibly be forced into the background. But, so long as there is a semblance of recognition maintained between scientific medicine and quackery, the complete destruction of the latter cannot be accomplished.

If once the now-apparent bond of union between them is *completely divided*, the two, by their inherent nature, will repel each other. They will progressively diverge until recognition between the two is no longer among the possibilities.

If the medical profession is ready and willing—as it ought to be—to stand by the resolutions recently adopted by a number of medical societies and by the declarations here announced, a much more scientific condition in the practice of medicine can easily be instituted.

Only one thing more remains to secure complete success in this consummate undertaking, which is that all *our contemporaries* come forward and fully support the same principles and high standard.

With the medical profession and the medical journals united in one solid phalanx against proprietary medicines and nostrums of unknown composition, the defeat of quackery must be the final and speedy result.

It is hard to comprehend how any medical man who respects the oath which he took with the granting of his diploma can dare to give to his patients compounds or nostrums the composition of which is absolutely unknown to him. What does he give them for, and what results can he possibly expect by giving a something, he knows not what? How can he tell whether the result has been good or bad? How can he tell that he is not damaging irreparably the constitution of his patient?

Morally he has no right to take such risks, even if he can be protected by civil law.

The editor who sanctions the presentation of such matters in the journal through which he acts as the guide of medical thought should, for his own sake, stop and ask himself whether his blindness toward quackery, either in the editorial, reading, or advertising columns, will be much longer tolerated by the medical profession! —*Merck's Bulletin.*

REFORM.

UNDER this head, while commenting on the prize offered by Dr. George M. Gould, the *Medical Visitor* (homeopathic) says:

"It would be very easy for a homeopath to win that prize if the homeopathic school is to be taken as a unit. When an impartial observer looks about him it is not surprising that such an offer as the foregoing should be made. In one college the professor of dermatology

uses the same local applications that are recommended by Fox and others, and the homeopathic treatment is a secondary affair. In another the professor of practice tells his students that intermittent fever cannot be cured without quinine in from ten to fifteen-grain doses. In a third, the class is told that erysipelas cannot be cured with homeopathic remedies. In a fourth, the teaching is so foreign to the laws of homeopathy that many of the graduates have gone, bag and baggage, over to the allopathic school. In the fifth, one of the professsors of theory and practice cordially indorses a man who does not even claim to be a physician, as skilled in the treatment of skin-diseases, and his name is attached to the quack's circulars which are widely circulated throughout the city. In a sixth—but why multiply examples of the degeneracy of the homeopathic colleges with the ridiculous pretensions of the majority of the professors, homeopathic in name only and eclectic, or worse, in teaching. Both east and west, good men, true homeopaths, have resigned from the colleges because reform in these institutions was impossible. Remonstrances were of no avail and the mongrels held the balance of power.

"The rank and file cast aside, temporarily at least, the homeopathic law for the gold cure, for Christian science, for Kochism, and for every new medicine and new fad that shows its head. Hahnemann was too much of an old fogy for them and they want a reformed homeopathy."—*The Toledo Medical Compend, August*, 1892.

REVIEWS.

AN AMERICAN TEXT-BOOK OF SURGERY, FOR PRACTITIONERS AND STUDENTS. By Charles H. Burnett, M.D., Phineas S. Conner, M.D., Frederic S. Dennis, M.D., William W. Keen, M.D., Charles B. Nancrede, M.D., Roswell Park, M.D., Lewis S. Pilcher, M.D., Nicholas Senn, M.D., Francis J. Shepherd, M.D., Lewis A. Stimson, M.D., William Thomson, M.D., J. Collins Warren, M.D., and J. William White, M.D. Edited by WILLIAM W. KEEN, M.D., LL.D., and J. WILLIAM WHITE, M.D., Ph.D. Profusely illustrated. Philadelphia: W. B. Saunders, 1892.

THIS handsome volume comes before the profession with very considerable prestige. The gentlemen concerned in its preparation are well known in the surgical world, both as teachers and as writers, and their names may be taken as a guarantee that the doctrines and practice set forth in it will be in accordance with the best modern lights. Its editors represent two of the largest and most reputable medical colleges on this Continent. Its title is an attractive one, suggesting the idea of a work which shall embody the best fruits of American effort for the advancement of the science and art of surgery, give full recognition to the achievements of our countrymen in this field, and base its teachings upon the records of their researches and experience. Such an impression is further conveyed by the dedication "to the medical profession and medical students of America, by their co-workers and fellow-students, the authors."

On examination, however, we do not find this fair promise fulfilled. Outside of their own charmed circle, the authors seem to have found scarcely anything worthy of mention that their co-workers in this country have done. German, French, and English authorities are quoted in abundance, but only here and there does an American name appear. Yet we cannot but think that there have been made in the United States contributions to the science and art of surgery that should not have been overlooked, but should by all means have been brought forward with full credit in a work that distinctively claims to be American. Those who have studied surgical literature for the last thirty or forty years must have watched with pride the steady growth in amount, and especially in value, of the material furnished by our countrymen, not only in the Eastern States, but in the West and in the South. It is more and more appreciated and quoted abroad; it ought not to be ignored at home.

As already said, the soundness of the teachings contained in this work needs no stronger guarantee than is afforded by the names of its authors. In the preface it is stated that

"The entire book has been submitted in proof-sheets to all of the authors for mutual criticism and revision. As a whole, the book may therefore be said to express upon important surgical topics the consensus of opinion of the surgeons who have joined in its preparation, although it must be understood that, while it thus represents in general the views of all the authors, each individual author is free from absolute responsibility for any particular statement."

This seems to us like affixing the word "limited" to the name of a business firm. We think it would have been better had each author signed the articles contributed by him.

As might be expected, the style in the various portions of this work varies considerably; but it is in general such as to make very hard reading. The authors seem to have aimed too much at encyclopedic completeness for the limits even of their 1175 pages. On many subjects there is an abundance of detail in excess of the needs of the student, while others are passed in review all too briefly. Luxations of the hip are disposed of in five pages, while carcinoma of the uterus occupies eight, and fibro-myomata of the uterus nearly nine Nearly two pages are given to the discussion of "paratoloid," or Koch's remedy, and more than a whole page to rupture of the thoracic duct; either of these subjects might have been dismissed, in a text-book, with six lines.

The preparation of a work thoroughly suited to the practical purposes of a text-book is a much more difficult task than the writing of a treatise for advanced readers. Students need clear statements of the broad principles of the science, in a readable form; they are bewildered by references to conflicting views and opinions, unless they are distinctly told what to accept and what to reject. Of course there are matters under controversy, unsettled questions, which must be mentioned as such; but these are exceptional. The more distinctly the existing aspect of the science is focussed, as it were, for the untrained eye of the student, the better is the object attained. Statistics and percentages are superfluous, and should be wholly avoided.

The illustrations of the work before us are very abundant, in various styles, and of varying degrees of merit.

Some of the original plates are exceedingly good, notably Plates VIII and XIII. On the other hand, most of the original woodcuts are singularly bad, not only from an artistic point of view, but as not conveying any idea of the thing intended.

MEDICAL MICROSCOPY. A GUIDE TO THE USE OF THE MICROSCOPE IN MEDICAL PRACTICE. By FRANK J. WETHERED, M.D. Lond. Philadelphia: P. Blakiston, Son & Co., 1892.

IT is an encouraging feature in the progress of medicine to note that greater and more exhaustive efforts are being made to reduce it to an exact science. The microscope, more than any other one agent, perhaps, has come to be recognized as the most efficient ally in this direction. It is with pleasure, then, that the progressive practitioner should welcome a work under the foregoing title. It is a busy man's book, one that aims to cover a wide and varied field, not exhaustively but concisely, dispensing with minutiæ while retaining the salient points.

For the benefit of those who may wish to study details inconsistent with the purpose of the book, there is, in addition to occasional references throughout the text, an excellent bibliography.

Of the twenty-four chapters, twelve are devoted to histologic technique, including a thorough fundamental description of the microscope. This deserves all the space allotted to it. Clearness, accuracy, and completeness are imperative. The use of the term "object-glass," though not rare, is likely to cause misapprehension, as a strict interpretation might lead one to think that the glass slide upon which the object is mounted, or even the cover-glass, is referred to. The confusion is not lessened by the occasional use of the more preferable term—objective. Due stress is placed upon cleanliness, but great danger lurks in the chamois, on account of the oil in it, and because it holds very readily small particles of dirt, and the slightest scratch upon the lens of a good objective impairs or totally destroys its usefulness. Japanese filter or lens paper is to be preferred. In cutting celloidin sections a firm and unyielding substance like wood is preferable to cork, because the surface of the latter is likely to be made convex by the jaws of the microtome, and distorted sections are the result.

A few errors, typographic perhaps, appear. On page 321, $\frac{1}{1200}$ inch should be $\frac{1}{12000}$ inch, to become the equivalent of 2μ. On page 50 Merbrel's solution should be Merkel's. On page 53 *et seq.* Perenzi should read Perenyi. On page 133 *et seq.* Golgi has become Jolgi. It is not apparent why the author should describe Golgi's "sublimate method" and ignore entirely his more widely known and—as modified by Ramon y Cajal—more expeditious "silver nitrate method." Two references are made to figures in the frontispiece, but no frontispiece appears.

The desirability of using vernacular terms in books to be published outside of one's own country is rather questionable. A case in point is the use of the word "swill," meaning to rinse. The term, besides being inelegant, has the further objection of being obsolete in this connection. Similarly we note the word "embryonal," which is not only unusual but etymologically incorrect.

A commendable feature is the writing of the various formulæ in "parts," thus adapting them to either the metric or the apothecaries' system. The metric system in this work exemplifies a gradual evolution from a complete absence at the beginning to an almost exclusive use at the end.

The chapters on Tumors, Urinary Deposits, Feces, Sputum, Vomit, Discharges and Contents of Cavities, and the Discharges from the Genital Organs, are chiefly concerned with pathology. Clear and concise directions are given as to manipulation, and much important information as to the diagnostic value of the results. The chapter on the Examination of the Blood, besides dealing with its pathology, gives good directions for counting the corpuscles and for estimating the amount of hemoglobin. A short chapter is also devoted to Cutaneous Parasites. It is to be regretted that more was not said concerning the examination of food and water; for, as the mouth is the door through which many diseases enter the system, anything pertaining to preventive medicine needs as much, or more, emphasis than matters pertaining to diagnostic or curative medicine. The final chapter deals exclusively with Bacteriological Methods. Good illustrations in this and preceding chapters are a valuable aid to the reader. The methods are recent and compactly stated. If other departments could be reduced to as accurate a basis, medicine would indeed be "essentially an exact science."

A MANUAL OF MEDICAL JURISPRUDENCE. By ALFRED SWAIN TAYLOR, M.D., F.R.S. Revised and Edited by THOMAS STEVENSON, M.D. Lond. Eleventh American, edited, with Citations and Additions, from the Twelfth English Edition, by CLARK BELL, Esq., President of the American International Medico-Legal Congress of 1893. Pp. 787, with 56 illustrations. Philadelphia: Lea Brothers & Co., 1892.

AT the present day, when so many books are published without any observable reason for their existence, unless it be to gratify the vanity of their authors, it is a relief to find a book whose first and most prominent fault is that too much of valuable truth is crowded into an insufficient number of pages.

We are prone to find fault with the author and compliment the publisher, but in looking over the vast amount of material offered to the reader in Taylor's *Jurisprudence* we are forced to deplore the crowded state of its instructive chapters. The material is worthy of two volumes of much larger and clearer type. We also regret the absence of suitable illustrations. If one will take the time and trouble to visit medical publishers, in search of literature on medical jurisprudence, it will be seen at once how very little we have at hand at present and how urgently this work has been needed.

While books have been published in every other department of medical science until the work has been surely overdone, medical jurisprudence has been actually *neglected*. Taylor's *Jurisprudence*, always a standard work of genuine value, has been greatly improved by the faithful work of Clark Bell, whose wide learning and great experience as an editor of the *Medico-Legal Journal* have admirably fitted him for the task he has so skilfully and satisfactorily completed, so far as this edition is concerned.

With the plan so far developed it will be an easy task to add one or two hundred pages more with suitable illustrations, and then present a book which will stand absolutely without a rival in the literature of legal medicine. We can confidently recommend this book to the medical practitioner of to-day as *the best obtainable*. To quote from the preface of the eleventh American edition, much new matter has been added, many portions of the work have been amended, and some parts have been rewritten. Nearly seven hundred cases and authorities have been cited.

The work is perhaps more complete from the jurist's standpoint, and if it lacks in value, it is in matters purely professional.

The article on "Suicidal and Homicidal Gunshot Wounds" is particularly disappointing in view of the many remarkable cases which have attracted attention during the past ten years.

The great fault which most of our medical books have, to the everlasting annoyance of medical readers, is the *index*—this is not as carefully prepared as it should have been, but it is in point of fact better than the average.

Clark Bell has given the medical profession a book on legal medicine which will be a safe guide and counsellor, useful alike for the student and the busy practitioner.

When we consider that a physician's reputation may be made or marred by his management of his first medico-legal case, such a treatise as this is one which has been urgently needed, and will undoubtedly be heartily appreciated by the medical and the legal professions.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Thursday Evening, October 20, 1892.

DR. J. O'DWYER read a paper on "Intubation *versus* Tracheotomy for Acute Laryngeal Stenosis in Children." He stated that by acute laryngeal stenosis he meant fibrinous diphtheria or membranous croup, which is the most fatal of all diseases of early life. He referred to the statistics on this subject given by Dr. R. W. Lovett, of the Boston City Hospital, in which the percentage of recoveries following tracheotomy was larger than that following intubation. These statistics, he said, cannot be considered as a safe guide, as the operations were done by the hospital-staff, who did not remain on duty long enough to obtain the skill necessary to perform intubation successfully. In twenty-one of the cases cited, intubation was attempted, and immediate tracheotomy necessitated by the cessation of breathing. Three times death occurred during the attempts made to introduce the tubes. In two cases the tubes were drawn into the bronchi. In two cases the insertion of the tube was followed by convulsions. In two cases the instrument broke during the operation. This record, Dr. O'Dwyer says, shows too many failures to have followed an operation that should have no failures.

One of the chief objections urged against intubation is that it is difficult to feed a patient while the tube is in the larynx. This usually happens, the speaker said, when the throat has been lacerated by long-continued efforts to introduce the tube. It is a difficulty in some cases, but serious results are not caused by it. The operation of intubation is a difficult one, because it must be done very rapidly. A period of ten seconds is not safe in some cases, and fifteen seconds would certainly produce apnea in many instances. The necessary touch and skill require much practice, and this should be acquired on the cadaver until the tube can be inserted in different subjects in about five seconds. It is much easier to perform intubation in some subjects than it is in others. After such prolonged practice, the operation may be done with comparative safety.

No great amount of surgical skill is required to perform tracheotomy, but good nursing is a necessity. Intubation, therefore, calls for a trained operator, and tracheotomy for a trained nurse. In the Boston City Hospital the recoveries following intubation amounted to 20 per cent. In the Willard Parker Hospital, in New York, the percentage of recoveries amounted to 38 per cent.; in Buda-Pesth to 39 per cent. At the Boston City Hospital tracheotomy has saved one patient in fourteen. Dr. O'Dwyer, by intubation, has saved one in six. Secondary tracheotomy succeeds when there is loose membrane in the lower part of the trachea, which cannot be got rid of by intubation. Intubation practically accomplishes all that tracheotomy can accomplish, without possessing any of its unpleasant features.

DR. L. S. PILCHER, of Brooklyn, said that in the vast number of cases, acute laryngeal stenosis in children is due to the accumulation in the larynx of a diphtheritic exudate. For over thirty years diphtheria has prevailed endemically in New York and Brooklyn, and it is to-day one of the chief causes of death in these cities. The tubes of Dr. O'Dwyer are not well adapted for the removal of the diphtheritic exudate in the trachea. Such masses may at any moment cause a crisis, and immediate death may follow the introduction of the tube. It is too late then for tracheotomy, and the fatal result can rarely be averted. Secondary tracheotomy shows a very smal percentage of recoveries, however skilfully the operation is done. In order to relieve acute laryngeal stenosis, therefore, most surgeons still believe in opening the trachea from without, at some distance from the thyroid gland. One of the points of success is to rapidly remove the detritus which wells up. Deglutition is not interfered with by the presence of a canula in the trachea introduced through an external incision. Intubation would be resorted to in less dangerous cases than would tracheotomy, and this fact is likely to affect the statistics, so that no reliable conclusions can be drawn from them as to the comparative merits of the different procedures. When a diphtheritic exudate has formed, intubation answers the indications for surgical interference much less than tracheotomy, and the former should not, as a rule, be used as a substitute for the latter. Nevertheless, intubation has supplanted tracheotomy to a very considerable extent, especially in this country. During the past seventeen years, Dr. Pilcher said, he has been called upon 66 times to perform tracheotomy, while a physician in his neighborhood has, in the past four years, been called upon 142 times to perform intubation.

DR. GEORGE S. GAY, of Boston, stated that up to July 1, 1892, tracheotomy for croup was performed 514 times at the Boston City Hospital. In 116 of these cases

recovery followed. Intubation was performed 502 times, with 91 recoveries. In 58 instances both operations were performed on the same patient, with only 7 recoveries. These statistics show a difference of four per cent. in favor of the older operation. The degree of relief obtained from the dyspnea, rather than the final result, is the standard by which the two operations should be judged. Does tracheotomy relieve dyspnea when intubation fails? In some cases, in which membrane is pushed down by the introduction of the tube, tracheotomy will afford relief, but such cases are very uncommon. If the obstruction is situated very deeply, then neither operation will give relief.

Dr. Gay said that intubation is by no means perfect, but it possesses sufficient advantages to give it a permanent place in the treatment of acute laryngeal stenosis. Although it will never entirely displace tracheotomy, the former has some important advantages over the latter. No anesthetic is required; there is no hemorrhage. Unless one's early experience with intubation has been particularly favorable, he is likely to prefer tracheotomy. The strongest advocates of intubation will be found among those who have had the largest experience with it. The consent of the parents to perform intubation is more easily obtained, and the operation can be resorted to earlier.

A letter was read from DR. F. E. WAXHAM, of Chicago, who gave the following statistics as the result of his personal experience with intubation in acute laryngeal stenosis, all occurring in private practice: Under one year of age, 12 cases, with 4 recoveries; 33 per cent. At one year of age, 58 cases, 13 recoveries; 22 per cent. At two years, 74 cases, 30 recoveries; 40 per cent. At five years, 40 cases, 18 recoveries; 45 per cent. At six years, 26 cases, 7 recoveries; 26 per cent. At eight years, 10 cases, with 6 recoveries; 60 per cent. In all, he reported 421 cases, with 146 recoveries; 34.67 per cent.

DR. ABRAHAM JACOBI said that when this subject had been discussed at the Academy, four or five years ago, he was converted from tracheotomy to intubation. Before that time he had performed many tracheotomies—probably between six and seven hundred. It is very easy to get the parents' consent to perform intubation, but it is very difficult to get their consent to perform tracheotomy. For this reason in many cases the latter operation is performed too late. It is true that modern surgery has done away with a number of the dangers to be contended with in performing tracheotomy in 1860 and 1870, and even later, but it is still almost impossible to keep the wound in the trachea aseptic, and the baby often dies from two kinds of sepsis, so to speak: the sepsis of diphtheria and secondary sepsis. Dr. Jacobi said that, although he is in favor of intubation, and always recommends it, he has never performed the operation personally. Thirty years ago he was a professed tracheotomist, and on one occasion he was told that he was a good enough man, but that he cut too many throats.

DR. FRANCIS HUBER stated that while both intubation and tracheotomy possess certain intrinsic advantages, he favors intubation as a primary measure in laryngeal diphtheria. The mortality varies in different years and in different epidemics. He recommends the use of mercuric chloride in cases of early diphtheria. In children under two and a half years of age, intubation certainly gives better results than tracheotomy.

DR. A. L. LOOMIS inquired of Dr. O'Dwyer whether he ever meets with a case in which he finds it impossible to insert the tube.

DR. O'DWYER replied that he never meets with such cases now. Such an event did occur during his early experience, and with the imperfect instruments then employed.

CORRESPONDENCE.

THE METRIC AND APOTHECARIES' SYSTEMS COMPARED.

To the Editor of THE MEDICAL NEWS,

SIR: Dr. Forrest (THE MEDICAL NEWS, October 22, 1892) states that ". . . it [the metric system] is highly objectionable, both from a scientific and practical point of view." He holds that: ". . . . the standards of our forefathers should be more proportionate and fitting than a late and arbitrary invention."

I shall attempt to answer some of his arguments.

First, from a scientific standpoint, let it be granted that the metric system is not as perfect as it might be for the reasons he gives. Is the apothecaries' system more so? What is the grain if not an arbitrary standard, and one, moreover, that bears no definite simple relation to units of volume and length? And which is the more scientific, a system that divides decimally throughout, or one that divides a gallon into eight parts, each of those into sixteen parts, each of those into eight parts again, and finally each dram into sixty parts, thus using three systems of division in the one system of measures, and also varying its measures in the two countries in which it is most used. In addition to this the confusion of terms whereby an "ounce" may signify either 480 or 437½ grains is surely unscientific.

So much for the scientific side of the question, which is, perhaps, of less importance than the practical side.

As to the convenient division of the dose, wherein is it more convenient to divide a dose into halves, quarters, etc., than into fifths, tenths, and hundredths? Surely Dr. Forrest will not advocate guesswork where the halves and quarters are so convenient, and it is as easy to measure 25 c.c. as one-fourth of an ounce.

What advantage has the grain, which is divided into all sorts of fractions, to express the doses of the powerful alkaloids, over the milligram, which is decimally divided?

As to the inconvenience in size of the meter and centimeter, we have comparatively little to do with them, as the units of weight and volume concern us more often, and we hear no complaint of inconvenience in size from the chemical laboratories that use the metric system almost exclusively.

And what relation do any of these weights and measures bear to the "size and strength of the average man or the materials to be weighed or measured?"

As to the international character of the metric system, a prescription written in that system would be correctly filled at almost any drug-store in the United States, Germany, France, Italy, and probably England. Can as

much be said of a prescription using the apothecaries' system, which would not be the same if compounded even in England as here?

And as to "all the people who use the metric system at home," coming to this country and England to buy, how do our exports of drugs compare with our imports from Germany and France alone?

Finally, Dr. Forrest says the metric system is "an intolerant system, an ally of despotism."

I do not suppose any one wishes to compel Dr. Forrest to use the metric system in his individual prescriptions any more than we are now compelled to use the apothecaries' system.

The Committee of Revision of the Pharmacopeia adopted the metric system, and it is, therefore, as much an American system as our linear measure, which came originally from England.

Because a good thing originates abroad, it is not necessarily patriotism to refuse to adopt it at home.

And why would it not be a good thing to have another "international standard" conference in connection with the proposed international monetary conference?

Very respectfully,

A. P. SUMMERS, PH.B. (Yale), M.D.

FOSTER'S FALLS, VA.

A PLEA FOR CLEARER PHRASEOLOGY IN ABDOMINAL SURGERY.

To the Editor of THE MEDICAL NEWS,

SIR: The editorial in THE MEDICAL NEWS for October 15, 1892, entitled "Celiotomy *versus* Laparotomy," calls attention to a fact of great interest to the educated physician, as the technical language of medicine is too often cloudy, cumbersome, and, at times, well-nigh meaningless.

The term "laparotomy" has long been a thorn in the flesh of many, and your determined stand against it is commendable.

The word "celiotomy," however, while etymologically the correct one to employ when it is intended to convey the idea hitherto expressed by "laparotomy," ought not itself to be used, except, perhaps, in a very few instances.

"Celiotomy" expresses merely the surgical penetration of the abdominal cavity. It does not state for what purpose the cavity is opened.

Is it not better, then, to drop all obscure terms and to state, simply and precisely, the exact word or words necessary to express the entire idea? Such accurately descriptive words are, *e.g.*, "oöphorectomy," "gastroenterostomy," "hepatotomy," "abdominal hysterectomy," "section for tuberculous peritonitis," etc.

"Celiotomy" need be employed very seldom, if at all. On the other hand, "laparotomy" has a legitimate use; the expression "laparotomy for appendicitis" being *proper*, though rather unprecise, when the section has been made in the groin.

Trusting that this little plea for more exact, and hence more scientific terminology in medicine may bear with it some slight influence in the right direction, I am,

Most sincerely yours,

SCHUYLER C. GRAVES, M.D.

GRAND RAPIDS, MICHIGAN.

NEWS ITEMS.

Program of the Fifth Annual Meeting of the Southern Surgical and Gynecological Association, to be held in the Council Chamber, City Hall, Louisville, Ky., on November 15, 16, and 17, 1892.

Address of Welcome and Response.

"The Simple, Septic, Traumatic, and Specific Forms of Cervicitis and their Treatment." By Bedford Brown, M.D., Alexandria, Va.

"Experiences in Pelvic Surgery." By A. V. L. Brokaw, M.D., St. Louis, Mo.

"Craniotomy upon the Living Fetus is Not Justifiable." By Cornelius Kollock, Cheraw, S. C.

"A Case of Extensive Hematocele Resulting from Tubal Pregnancy Rupturing into Broad Ligament." By W. D. Haggard, M.D., Nashville.

"Contribution to the Study of Abdominal Pregnancy." By H. C. Coe, M.D., New York City.

"Tubal Pregnancy." By Joseph Price, M.D., Philadelphia, Pa.

"Fibroid Tumor of Uterus; Pregnancy; Rupture at Fourth Month; Operation Six Weeks Afterward; Death." By S. M. Hogan, M.D., Union Springs, Ala.

"Some Kidney Operations, with Remarks." By Geo. Ben. Johnston, M.D., Richmond, Va.

"Surgery of the Ureter." By Chas. A. L. Reed, M D, Cincinnati, O.

"Surgical Treatment of Inguinal Hernia in the Male." By Henry O. Marcy, M.D., Boston, Mass.

"A New Operation for the Radical Cure of Inguinal Hernia." By G. A. Baxter, M.D., Chattanooga, Tenn.

"Treatment of Umbilical and Ventral Hernia." By W. H. Wathen, M.D., Louisville, Ky.

"Symptoms of Fractures; Their Importance and Significance." By W. C. Dugan, M.D., Louisville, Ky.

"Treatment of Ununited Fractures." By W. O. Roberts, M.D., Louisville, Ky.

"Poisoning by the Bite of the Southern Spider." By J. T. Wilson, M.D., Sherman, Texas.

"Intestinal Anastomosis by a New Device." By H. Horace Grant, M.D., Louisville, Ky.

"Intestinal Anastomosis without Mechanical Devices and Circulo-lateral Enterorrhaphy." By John D. S. Davis, M.D., Birmingham, Ala.

"Stone in the Bladder, with Report of Cases." By Floyd W. McRae, M.D., Atlanta, Ga.

"Ovarian Cystoma with Twisted Pedicle and Peritonitis; Ovariotomy in Second Week of Typhoid Fever; Recovery." By L. S. McMurtry, M.D., Louisville, Ky.

"Morphology of Abdominal Tumors." By Howard A. Kelley, M.D., Baltimore, Md.

"Surgico-electrical Treatment of Epilepsy." By B. E. Hadra, M.D., Galveston, Texas.

"A Plea for More Rapid Surgical Work." By Ap Morgan Vance, M.D., Louisville, Ky.

The President's Annual Address. By J. McFadden Gaston, M.D., Atlanta, Ga.

"Specialism as Related to the Practice of Gynecology." By Wm. Warren Potter, M.D., Buffalo, N. Y.

"The Relation of the General Practitioner to Gynecology." By R. M. Cunningham, M.D., Birmingham, Ala.

"Specialism in Medicine." By W. F. Westmoreland, M.D., Atlanta, Ga.

"Personal Recollections of the late Dr. Benjamin W. Dudley, of Lexington, Ky., and his Surgical Work." By Bedford Brown, M.D., Alexandria, Va.

"Appendicitis." By Edward McGuire, M.D., Richmond, Va.

"The Surgical Treatment of Tubercular Peritonitis." By Wm. H. Meyers, M.D., Fort Wayne, Ind.

"The Present Status of Drainage in Surgery." By A. Morgan Cartledge, M.D., Louisville, Ky.

"Modern Bacteriological Research in Relation to the Surgery of the Genito-urinary Organs." By G. Frank Lydston, M.D., Chicago, Ill.

"Nature of Shock and Allied Conditions." By Wm. C. Dabney, M.D., University of Virginia.

"Shock." By Jas. Evans, M.D., Florence, S. C.

"Ovariotomy on Old Women." By Joseph Taber Johnson, M.D., Washington, D. C.

"A Manipulative Mistake and its Consequence." By Geo. Ross, M.D., Richmond, Va.

"Operation for Hare-lip without the use of the Pin." By Wm. Perrin Nicholson, M.D., Atlanta, Ga.

"The Part that Rectal Diseases Play in Women." By J. W. Mathews, M.D., Louisville, Ky.

"Cholecystotomy, with the Report of a Case." By Edwin Ricketts, M.D., Cincinnati, O.

"Treatment of Stones in the Biliary Ducts." By W. E. B. Davis, M.D., Birmingham, Ala.

"Puerperal Peritonitis." By Richard Douglas, M.D., Nashville, Tenn.

"Large Uterine Myoma; Abdominal Hysterectomy; Recovery (with Specimens)." By L. S. McMurtry, M.D., Louisville, Ky.

"Cysts of the Mesentery." By Jas. A. Goggans, M.D., Alexander City, Ala.

"Case of Obscure Abdominal Hemorrhage. By I. S. Stone, M.D., Washington, D. C.

Dr. J. Collins Warren has accepted the Executive Presidency of the Section on Medical Pedagogics of the Pan-American Medical Congress.

Alvarenga Prize of the College of Physicians of Philadephia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1893, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in Medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1893.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within it the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1892 has been awarded to Dr. R. H. L. Bibb, of Saltillo, Mexico, for his essay entitled "Observations on the Nature of Leprosy."

Lukasiewicz, the first assistant at the clinic of Kaposi at Vienna, has been made extraordinary professor of Dermatology and Syphilology at the University of Innsbruck.

Dr. L. S. McMurtry, of Louisville, has been elected professor of Gynecology in the Hospital College of Medicine, Medical Department of the Central University of Kentucky.

Wassiliew has been made Professor of Clinical Medicine at Dorpat.

BOOKS AND PAMPHLETS RECEIVED.

Prospectus of the St. Louis College of Pharmacy, Twenty-seventh Annual Session. St. Louis: Gast Print.

Colpo-perineorrhaphy. By Edward W. Jenks, M.D. Reprint, 1892.

The Operative Treatment of Enlargement of the Prostate. By C. W. Mansell Moullin. A Pamphlet. London: John Bale & Sons, 1892.

The Sensory-motor Functions of the Brain. By L. Harrison Mettler, A.M., M.D. Reprint, 1892.

Some Remarks on Pneumonia and the Cause of Heart-failure, with Report of a Case. By L. Harrison Mettler, A.M., M.D. Reprint, 1892.

Early Symptoms and Etiology of Hip-disease; Treatment of Abscess in Hip-disease. By H. Augustus Wilson, M.D. Reprint, 1892.

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, NOVEMBER 19, 1892. NO. 21.

ORIGINAL ARTICLES.

THE HYDRIATRIC TREATMENT OF TYPHOID FEVER IN PRIVATE PRACTICE.

BY CHR. SIHLER, M.D.,
OF CLEVELAND, OHIO.

PROF. OSLER'S words that the hydriatric treatment of typhoid fever is "scarcely feasible" in private practice must do a great deal of harm, if, as is more than probable, his book on *Practice* finds an extensive sale. To aid in undoing that harm, and to induce my honored colleagues to use the hydriatric treatment in private practice, is the purpose of the following remarks.

The conviction that the Brand method is not only an excellent one, but that it can also be carried out in private practice, is based on nearly three years of experience. During this time about eighty patients have been treated and about 4000 baths have been given. Among these patients were children from nineteen months and grown persons from fifty-three years down. Some were delicate and some were robust; some coming under treatment early, some late. Some cases required only from 20 to 30 baths, whilst many required from 50 to 60; a number were given over 100 baths. All conditions were represented, the only exception being the wealthy class—a fact demonstrating that the mass of the people do not furnish insurmountable obstacles to the use of cool baths, providing that they have full confidence in their physicians. My patients were chiefly good people, and good people are willing to undertake something unpleasant for a higher good. Physicians practicing among the well-to-do and educated classes should have no trouble with this method.

In the *Maryland Medical Journal* of January 23, 1892, I find an article on the hydriatric treatment of typhoid fever, for which I feel very grateful to the writer. Nevertheless I shall introduce the subject here for the purpose of expressing my dissent from a particular opinion. The passage to which I refer is the following:

"The reports of European physicians upon the subject are interesting to American practitioners as showing what has been done there, but as a guide in our own practice Dr. Sihler's own observations are much more valuable. The question is not how Europeans have borne the baths, but how our people will bear them. The German and French statistics (except Brand's) are largely from military hospitals, and we have no warrant for believing that our own delicate private patients will react as well to the baths as the strong and hardy European soldiers. Brand declares that his method cannot, for various reasons, be thoroughly tested in civil hospitals. We are, therefore, shut in for our own guidance to experience learned from private patients in our own land. Such experience will necessarily be very slowly gained, and it is very doubtful whether the method will ever be adopted or fairly tried by our profession in America."

When I read these lines I was astonished, and asked myself, Where and when will there be an end to the objections to the Brand method? The reasonable ones have been answered to the satisfaction of scientific medicine, but an indefinite string of unreasonable ones still wait to be answered. Meanwhile the typhoid fever patients in the United States are allowed to suffer and to die. How can we gain experience in this country if we do not try the method?

I was somewhat consoled when Dr. Brand wrote me that he had heard such objections before. Thus, a physician from Silesia (in the middle part of Germany) had expressed his doubts whether a method useful among the people of Pomerania (in the northern part of Germany) would similarly affect the inhabitants of his province further south, and a French physician was disinclined to believe that the French would derive the same benefit from the baths that the Germans had found. I expect soon to hear that the method may be very beneficial in Cleveland, but that this is no evidence whatever that the people of New York or Chicago will react as well to the baths. I expect to hear that a special experimental physiology and pharmacology on American dogs, rabbits, and frogs must be written, these being more delicate than the hardy German and French animals. Has anyone ever heard such objections raised when a new drug was to be introduced in this country; and have we any special therapeutics for the delicate Americans?

Protesting, then, against the unproved and unreasonable assumption that Americans differ from their European kinsfolk in physiologic make-up, as well as in pathology and reaction to therapeutic agents, let me speak of some special points in the passage.

1. The reader of the passage will be under the impression that in France the good results from the baths have largely been obtained among soldiers. This is not the case. Glénard, in 1883, published a pamphlet in which he complains of the neglect of the Brand method in the French army, with a

death-rate of 35 out of 100 cases of typhoid fever, while in the German army, using Brand's method, the rate was 10 per cent. Further, the work of Tripier and Bouveret, advocating and describing the Brand method, was based on the study of the disease in non-military hospitals. Bouveret, in 1892, published the report of a series of 100 cases in the Hôtel Dieu, Lyons, with a death-rate of 2 per cent.; and in a declaration in favor of the method, signed by a number of physicians of Lyons, it is specifically stated that this practice is carried out with their private patients, and that their own wives and children are thus treated.

2. Of the 1223 cases, with 12 deaths, treated accurately after Brand, 559 occurred in civil practice, with 2 deaths, the rest in military practice—the 559 cases including men, women, and children as private practice offers them.

3. The fact that the mortality from typhoid fever among soldiers is naturally higher than in civil practice ought to make the results obtained among soldiers particularly valuable, and not of less value, showing clearly the great efficacy of the method. The most stubborn objector in the United States, if he wants to be consistent, should at least not refuse to utilize the observations made on soldiers when he is called to treat persons of the same type, *i. e.*, young men.

In passing I would express my doubts as to whether the germs care very much for muscle and as to whether muscular persons have any advantage in fighting the disease over persons of a less ideal physique.

4. The article mentioned speaks of partial collapse as an ordinary effect of the bath, and the passage quoted might lead one to think that the cool baths were something in the nature of blood-letting, starvation, excessive bodily exertion, a severe surgical operation, etc., which only robust persons could endure. If a gardener watering some parched plants were told that he was doing something heroic, something that was lowering the vitality of his plants—would he not smile? Similarly, one who has used the baths must smile when he discovers that a similar notion regarding the baths seems deeply imbedded in the minds of physicians. To think of a procedure that may bring down the pulse from 136 to 120; that keeps the tongue moist and clean during an acme of two weeks; that tones up the digestive functions; that produces sleep and banishes delirium, encourages an abundant flow of urine and prevents bed-sores—to think of such a measure as a debilitating one, as not suitable to a delicate organism, might call forth a smile if tears and death were not the result of the false opinion. The writer of the passage does me the honor to say my observations are of some value. Hoping to aid in inducing others to begin using the method, I shall make my experience during the last six months the subject of some remarks.

CASE I.—Mrs. W., thirty-two years old, was confined in normal labor, Monday, August 8, 1892. On July 30th she had been taken ill with a chill and fever, the fever continuing. August 1st her temperature was 103°, and gradually declined, so that four days later I found it at 100°; for one day she had diarrhea, so that the most probable diagnosis was a mild case of typhoid. She felt fairly well on the day of her confinement, and on the following days, although there was a decided elevation of temperature. But on Thursday afternoon she again felt chilly, and the following night was a bad one; she had diarrhea, could not sleep, and the first signs of delirium showed themselves. On Friday morning her temperature was 104°; pulse from 130 to 140; and she had the genuine typhoid look. In fact, as the next weeks showed, the disease had blazed up again, to take its regular course from now on. In the afternoon her temperature was 105°, and she was desperately ill; a bad prognosis was something not unreasonable. I concluded to use the Brand method, although her baby was not yet five days old. I procured one of my excellent nurses, whom I had well trained—and the method was carried out to the letter. After using the baths over night the appearance of the patient had changed; she no longer looked like a typhoid-fever patient, and the baths, which were given from the beginning of the genuine attack, continued to do their duty; the patient, without hypnotics, always slept well—in fact, slept both day and night; always took an interest in the treatment, introducing the thermometer herself and watching the measurements. The nurse, a small woman, always put her in and took her out of the tub without assistance; the tongue of the patient always remained moist, absolutely without coating, and sufficient nourishment could be taken. But for the elevation of temperature and the pulse one would not have supposed her a very ill person. Her pulse during the worst days would not be over 140, and it was from 16 to 20 less after the bath.

CASE OF MRS. W.

Day of treatment.	Average temperature before the baths.	Average temperature after the baths.	Maximum temperature of the day.	Number of baths.	Temp. of baths, F.	Duration of baths, minutes.
1	104.5	104.0	105.5	8	70	17
2	104.5	104.0	105.0	8	66	15
3	103.5	102.7	105.5	8	66	15
4	102.5	102.0	103.5	7	67	13
5	104.0	103 0	105.5	8	68	12
6	104.5	104.0	105.5	8	68	13
7	104.5	103.5	105.5	10	68	10
8	104.5	103.5	105.5	11	64	10
9	104.3	103.8	105.5	8	66	10
10	103.5	103.0	104.5	8	68	10
11	103.5	103.5	104.5	8	68	10
12	103.5	103.0	104.5	8	68	10
13	103.2	102.5	105.0	8	68	10
14	103.2	102.0	104.5	8	68	10
15	102.0	101.0	103.5	4	68	10
16	102.0	101.0	102.5	2	68	10

To reassure the reader as to the diagnosis, I add that the lochial discharge was excessive in amount and duration; diarrhea, with distention of the bowels, was well developed during the second and third weeks, and the plain and characteristic rose-spots made their appearance in the beginning of the second week.

The preceding table gives the details of the case, so far as the temperature and the baths are concerned. One hundred and twenty-two cool baths were given.

I think it will be admitted that the case was a grave one, and I wish that the reader could have seen her before the baths were used. Here, then, we have the case of a lady who was born in America, who, when the hydriatric treatment was begun, had a baby five days old, who was ill nine days before her confinement, and who prior to this illness had gone through a four weeks' siege of nursing her four older children through attacks of scarlet-fever. Instead of making me hesitate, it was for these reasons that I was all the more anxious to have the cool-bath treatment carried out accurately and from the very beginning. I will add that the patient and her husband were soon convinced of the value of the method, and made no trouble for the nurse. (The neighbors, of course, had prophesied the worst.) After going through an attack of gall-stone colic, with great distention of the gall-bladder, the fever had disappeared by the 13th of September, just one month after we had given her the first day's hydriatric treatment. I then stopped my regular visits, as she was able to be out of bed and walk about the house. I could not help comparing her with a sister-in-law whom I had treated some years previously, if the orthodox method may be called treatment. This patient had had neither the high temperature nor the high pulse of Mrs. W., but during her illness several bed-sores appeared. The fever had subsided during the middle of November, and yet when I happened to call at the house in March she was still too weak to be about.

It will be seen by the preceding table that a number of baths were of only ten minutes' duration. The nurse had to shorten them on account of the setting-in of fainting. In such cases the baths can be given oftener; but we did not for a moment think of discontinuing, on that account, the cool-bath treatment. It will also be seen that the reductions of the temperature by the baths were insignificant, not as great as we ordinarily expect to obtain. This circumstance leads me to speak of another case.

CASE II.—John L. was seen by me in consultation five days after his illness had begun, not because his fever had been high, but because he complained of want of breath, his respirations being labored and frequent, as if some mechanical obstruction existed, as, *e. g.*, from bronchitis. His lungs, however, showed no physical changes whatever, and I explain this condition by the gravity of the infection, the direct influence of the fever-poisons on the respiratory center. The skin was cool and covered with clammy sweat. Omitting details, I merely state that Mr. L. took in all 167 baths. During the first two weeks the temperature of the bath varied. We commenced, after a few preparatory baths, according to the formula; but, as I expected, on account of the corpulence of the patient we obtained no reductions by the baths of 68°, and, therefore, reduced the temperature to 66°, 64°, 62° successively, and even to 60°; we also increased the duration of the baths to twenty minutes, and once even to twenty-five minutes—*but we could not reduce the temperature of the patient.* At times a reduction of ½° or 1° was obtained, but just as often no impression whatever was made. After a bath at 62°, of twenty minutes' duration, the temperature remained as before; nor did eight such baths, one after the other, have any different effect; nor did we find any effect if prolonged to fifteen or to thirty minutes. In spite of this fact, I observed all of the good effects from the baths ordinarily observed when the temperature can be reduced two degrees or more. The feeling of oppression and want of air soon left him, the sweating ceased, although the fever, which had been 103.5° at my first visit, went up to 104° and higher; he always slept; was able to step into the tub, four or five steps away from his bed; he took large quantities of nourishment; his tongue had a very thin coating and he passed a great deal of urine, at times as much as eight pints a day. Toward the fourteenth day of his illness his abdomen was tense, and he several times passed from two to four ounces of blood with his discharges; these being of a syrupy consistence. Of course we did not discontinue the baths on that account, especially as he felt relieved by the loss of blood. About the twenty-first day of the disease blood again appeared in the stools. For eleven days bath after bath (60° to 68° F.) was given, eight a day, without any appreciable reduction of temperature. Critical sweating occurred after that, with some fall of temperature. Toward the eighteenth day, when the fever began to abate and the patient was sweating more or less, we used the lukewarm bath of from twenty to thirty minutes' duration, with affusions, three pails of cold (60°) water. The patient continued this procedure perhaps somewhat longer than was absolutely necessary, and hence the great number of baths.

Loomis, in his *Practice*, says: "My experience in the use of cold applications leads me to believe that unless it is possible to maintain a low range of temperature after 4 or 5 baths, very little is gained by their continuance."

This I consider false and pernicious teaching, and am of the opinion that Mr. L.'s case adds another proof of the correctness of the view that the usefulness of the hydriatric treatment by no means centers in the reduction of temperature, and that it is an error

to look upon the cool bath simply as an antipyretic. This is also the opinion of one of the authorities in the hydriatric treatment to whom I wrote for information as to how far one should go in trying to bring about a reduction of temperature in these stubborn cases, and if one might not expect the good effects of the baths without lowering of temperature. His answer was as follows: "You are certainly on the right track if you have come to hold the view that one should not carry the effort to cool off the patient too far, and that one should be satisfied with the favorable influence on the remainder of the symptoms aside from the reduction of temperature. I am convinced that the advantage of the cool-bath treatment over the medicinal antipyretic treatment consists in this, that, while the antipyretic medicines produce a great lowering of temperature, they at the same time are of bad influence on the general condition of the patient; the baths produce a moderate but often repeated lowering of the temperature, but they increase the resistance of the organism by their invigorating influence on the heart and the nervous system."

I suppose the question how far one ought to go in trying to obtain a lower range of temperature is one still *sub judice*, and one that will bear further discussion. Observations must be multiplied before it will be definitely answered; but my case at least shows that one should not send home the tub after four or five baths have failed to produce a lower range of temperature. Whether a special case will bear baths of 60° and 62° F., or have the baths prolonged beyond fifteen minutes, I cannot say. I should not wish to advise this course in every such case. It must be left to the individual judgment of the physician, who must be governed by his observations on the effects of the previous baths.

While my experience has shown me that good effects can be obtained without a reduction of temperature, I am convinced that the best effect cannot be obtained without producing shivering of the patient. Whatever light future investigations may throw on this process, this, at least, is certain: that during this condition powerful contractions of the voluntary and involuntary muscles take place which, in turn, must influence for good the movement and distribution of the fluids of the body, and result in an approximate normality of the functions of the nervous system.

CASE III.—Mary F., seven years of age, so far as the temperature and baths are concerned, will be described in detail, in order to show how many baths, etc., should be given to children. Note the following table.

The patient came under treatment after an illness of only a few days; but already a dry, smooth tongue, diarrhea, and tympanites were present; she had not slept for several nights, and was moaning continuously. The table shows that the case was not a mild one. While the baths greatly modify for the better the symptomatology of the disease, yet they by no means efface the character of the case. The number of baths necessary, the height of the fever, the rapidity of the rise of the temperature after the bath, all give an insight into the nature of the case, and allow one to make inferences as to what would and might have happened had no baths been used. The baths not only reduced the temperature, but they had an excellent effect on the general condition. The little patient slept all of the time; there was not the facial expression characteristic of a grave disease. The tongue improved, and presented a normal appearance long before the disease had run its course; her abdomen never became tense, the diarrhea never excessive, and there were no involuntary discharges.

CASE OF MARY F.

Day of treatment.	Average temperature before the baths.	Average temperature after the baths.	Maximum temperature of the day.	Number of baths.	Temp. of baths, F.	Duration of baths, minutes.
1	104.0	101.0	105.0	3	80	15
2	104.0	101.5	105.0	7	72	12
3	104.0	101.5	105.0	8	72	12
4	104.7	101.5	105 5	9	71	12
5	104.5	101.5	105 0	8	72	12
6	103.7	101.7	105 0	10	72	12
7	103 2	101.2	104 0	9	72	12
8	103.5	10 .0	104.5	9	72	12
9	103.0	99.0	104.0	9	72	12
10	103.2	98 5	104.0	5	70	10
11	103 7	98.5	104.0	5	72	10
12	102.5	98.5	103.0	5	67	8
13	102.5	98.0	104.0	3	72	8
14	102.5	98.0	104.0	4	68	8
15	102.2	90.0	104.0	3	72	6
16	101.5	100.0	103.0	1	68	5

This case demonstrated that an American child experiences the same beneficial results from the baths that French or German children do. Of course, American children do not like to go into a cool bath more than grown persons do, and he who will be deterred by their cries had better not begin. Coaxing and begging the children will, of course, only prolong their sufferings. When the time has come, the quicker the child gets into his bath the better. A child is more likely to brace up for a stranger, a nurse, than for his parents, whose sympathies it can expect to enlist. I have now treated a number of children—a girl of nineteen months with over one hundred baths; a boy of three years with forty baths; a girl of twelve years with sixty-five; a girl of eight years with one hundred and four; a boy of twelve years with fifty; a girl of four years with fifty; a boy of twelve years with ninety, and a number of others.

One of these cases, a four-year old girl, Stella M., had a temperature registering almost always 104°, and the baths given were of 68° F. and ten minutes' duration. We commenced with warmer baths; but

the mother herself saw that to obtain the desired effect she had to resort to the Brand formula—baths of 68° and ten minutes' duration in the case of children. Wilson, in Keating's *Encyclopedia*, says that the baths should not be prolonged beyond five minutes, and the temperature should not be below 75° F. Brand thus differs from Wilson, and lays stress on the point that the baths should not differ in temperature from those for grown persons, because a child will cry out and fret as much in a warmer bath without deriving the desired benefit. In my practice I have been following Brand more closely than Wilson. With few exceptions, my baths have been of ten minutes' duration, often of 68° F. temperature, almost always, excepting in very mild cases, below 75°, the temperature that Wilson advises. So far I have seen no harm from following Brand. As his second edition of 1877 contains the report of one hundred and six cases without any death occurring in his own practice, I think it safe to follow Brand's directions.

Another case, a boy twelve years old, required ninety baths, and the method had to be carried out with more than ordinary stringency. The boy came under treatment ten days after the illness had begun —*i.e.*, from four to six days too late. I found him in the deepest form of delirium, with tympanites and roseola present, and with cough and dry râles all over the chest very marked. The first discharges I saw contained blood, and the pulse could not be counted. The following is the record of the second day of hydriatric treatment:

SECOND DAY OF HYDRIATRIC TREATMENT OF CHARLES BECKER.

Hour.	Temperature before bath.	Temperature after bath.
12	104.0	100.0
2	104.5	
4	105.0	101.0
6	104.0	
8	104.0	100.5
10	103.0	
12	105 0	104.0
2	103.5	100.0
4	105.0	104.0
6	105.0	102.0
8	105 0	
11	103.0	

Temperature of baths 68°; duration 15 minutes.

The table shows that two hours after the bath the fever had attained its former height. The baths were partially successful—it being more easy to prevent harm by their aid than to remove the harm done. After five or six baths the patient became more quiet, and rested from one to one and a half hours between the baths. He did not, however, come out of his delirium, nor could his pulse be counted even after the bath. After about four days of bathing according to the formula, he again became careless, and we then gave baths of from 90° to 96°, of thirty minutes' duration, with three parts of cold water (66°) poured over the head during the last ten minutes of each bath. These baths were given from every three to four hours. After two such baths he became more quiet, but after twenty-four hours he had another bad night, with restless sleep, interrupted by spells of loud crying-out, the cause of which I do not understand. After six days of treatment, during which time sixty baths were given, some signs of improvement appeared, slight perspiration existed, more quiet sleep set in, and he is now (ill four weeks) recovering rapidly, although his pulse, showing the intensity of the attack, remains high. Aside from the other good effects, the baths had the advantage of enabling us to give the patient some drink. At any other time it was impossible for the attendants to administer anything in the way of drink to the boy, but when near the end of the bath consciousness was regained so far that the patient could be induced to take a small cup of milk by threatening him with a prolongation of the bath, of which, in spite of his delirious condition, he was afraid.

CASE IV.—Mrs. F., the mother of Case III, was taken down with the fever, but required only about sixty baths, the disease in her case being mild. After using the baths a few days she remarked to me that she did not mind it so much to step into the tub.

This leads me to note the behavior of different patients in regard to the baths. When I began using the baths I feared that women would give me more trouble than men, but this preconceived notion proved false. The patients who seemed to suffer most, and needed more exhortation and gentle persuasion, were men, and I recall particularly a six-foot, strong man, whom I could hear moaning while in his bath, when I was ten feet away from the house. It must not be forgotten that the typhoid-fever poison, by affecting the brain, also interferes with the ordinary will-power of the patient. The unpleasant sensations are, I admit, an obstacle to the use of the method, just as the bitter taste is an obstacle to the administration of quinine. But who would discard quinine on account of its obnoxious taste?

CASE V.—Karl S., a young man, over twenty, had been ill for more than a week when he came under my care. There was not, after from 6 to 8 baths, the good effect upon the nervous system that I am accustomed to see; but after omitting the alcoholic stimulants, giving one-fourth of a grain of morphine in suppository, and being particular about the affusions to the head, the patient slept all of the time. When this satisfactory condition had lasted about two days he again became very restless, and the condition that the books describe as *delirium versatile* was present. The baths had the desired effect on the fever, which had not been very high. To convince myself of the efficacy of the baths I myself gave two; but even when the temperature of the patient was

98.5° he was as restless as ever, talked incoherently, and could barely be kept in bed. Morphine, which had acted favorably before, had no further good effect. I then tried a dose of sulfonal, with no immediate effect at least, and at the same time I gave what I call the soothing bath, a bath of 94°, of thirty minutes' duration, and three pails of cold water—60° —to be poured gently over the head during the continuance of the bath. The first bath, at about four o'clock, had very little effect, but after the second bath the patient went into a soft slumber, and we had no further trouble. These baths we continued, making them later a little cooler (from 86° to 88°) and shorter (from fifteen to twenty minutes), from three to four times a day.

I mention this case, in the first place, to call attention to this soothing form of the bath, which I had found useful in the insomnia of insane persons. A second reason for mentioning the case is this: it was the first time in my experience with the hydriatric method that a modification of the instructions given to the attendants was necessary. I doubt if such a contingency will arise when one treats a case from the beginning. I suppose physicians who cannot see their patients very often might feel a disinclination to adopt the method, but I am of the opinion that the method can be carried out even in country practice. Even if an interruption of the baths should at times become necessary, the patient would not be any worse off than if he were treated by the expectant method.

CASE VI.—Miss S., fifteen or sixteen years of age, came under my care, having been treated by another physician, and having been ill about two weeks. She had been losing blood by the bowel in rather large amounts, so that she appeared quite pale when I saw her, though not in a condition of collapse. Her pulse was over 120; her temperature 105° F. In spite of the loss of blood I gave her a lukewarm full bath (from 86° to 88°), and used two pails of water from the hydrant (72°) and well (60°) for affusion to the head, bringing her into a sitting position for that purpose. The bath, during which she was well rubbed, lasted ten minutes. Her hair was cut off before the procedure. I administered the bath myself, of course, and remained at the house to watch the effect. I found that this was very satisfactory. The pulse went down from 12 to 16 beats, the temperature to 101° (not too much, it will be seen), and she went to sleep. That a lukewarm bath had such a marked effect on the temperature shows that in such a weak condition of the organism the resistance to the refrigeration is very feeble. She slept so soundly that she did not awake when, on leaving the house an hour after the bath, I again took her temperature. She had had no sleep for some time, and her mother informed me that she had expressed a great longing for it during the previous days. I ordered cold compresses to the abdomen and anterior part of the thorax and baths similar to that which she had received, providing severe hemorrhages should take place. During the following days I ordered baths of 80°, to last five minutes only, if the temperature reached 103° in the rectum. These always reduced the temperature and produced sleep. (The medicines which she received were perhaps similar to those that she had been taking before the water was used.) She continued to lose blood for several days, so that the little hope I had for her life grew less, but the bleeding diminished, and she is now convalescent. The tongue was perfectly smooth, dry, and cut up by a number of fissures. Since using Brand's method I have not seen such a tongue amongst my patients, and the change which the baths produce in the typhoid-fever tongue should be sufficient to make converts to the Brand method. The tongue is not acted upon directly by the baths, but its condition is due to the influence of the baths on the organism in general; now if the tongue can be kept in such a normal condition (see Case I), may not the other organs be affected in a similarly favorable way?

To recapitulate (1) Americans, women, children, and men, alike, experience the same beneficial effects from the cool baths that European patients do.

2. In cases in which the baths fail to reduce the temperature of the patient, they should not be discontinued; they will still have a beneficial effect.

3. The prolonged lukewarm bath (from 90° to 96° F.), with gentle effusions of cool water (from three to four pails, of from 60° to 70° F.) to the head is often an excellent remedy in case of great excitement and inability to sleep (*delirium versatile*).

4. Women take to the baths more kindly than men.

5. When the fever is very high and the elevation of temperature is marked soon after a bath, it is advisable to repeat the baths sooner than the formula requires (three hours), and to give them every two hours.

6. Even when patients have reached the third week, and with hemorrhages, baths, and water more or less cool should be used according to the directions of Brand in the treatment of the "degenerated" cases. Parched, smooth, fissured tongues are unknown to the hydriatric treatment.

7. The method can be used in country practice.

A few words of advice to those thinking of using the hydriatric method in private practice may not be out of place here.

1. First of all get a bath-tub made. I had one six months before I had a case. My tubs are made of galvanized iron, with a strong iron rod around the rim, four-cornered, 5¾ feet long, 2 feet wide, and 16 inches deep. If you will have a tub you will use it, and if you have your tub, thermometers, etc., on hand, your patients will be under the impression that you know all about the method. My bath-tubs are amongst the most useful of my instruments.

2. Be present during and after as many baths as

possible, and especially at first; this both for the patient's sake, who will be encouraged, and for your own sake, who will be instructed.

3. As soon as possible instruct one or more suitable persons in the use of the method. Well-to-do persons will be glad to employ them, and even those less favorably situated can have a nurse, because not much money need be spent for drugs, and because the physician can restrict the number of visits if one of his trustworthy nurses is taking care of the patient. If the family wishes or is compelled to do its own nursing, you may send such a skilled person to the house for from twelve to twenty-four hours to give instructions in the use of the baths, thermometers, etc.

4. Do not propose the method in a half-hearted way. If you are convinced that Brand and his followers are in the right, tell your patients that you consider it your duty to use the method. If your patients are like mine, not more than one in twenty will refuse to take the baths.

5. Let your first case be one that you can treat from the beginning and treat accurately and strictly after Brand, so that both the community and yourself will not lose confidence in the method.

6. Follow the directions of Brand, Bouveret, and Vogl as closely as possible, and do not "improve" on the method before having used it for some time.

In my opinion the physician who will use the hydriatric method will find nothing but gratitude on the part of the patient and his friends; in treating typhoid fever he will become acquainted with the useful qualities of water as a remedy, and employ baths in other febrile diseases, such as scarlet fever, measles, pneumonia, etc., and he will thus be worth much more to his patients than he was before using the baths; he will find the hydriatric method not only satisfactory from the humanitarian standpoint, but he will also find it interesting from the standpoint of the scientific observer and physiologist. He will save the lives of some and shorten the sufferings of many.

"The physician, however, who has become convinced of the method and has not the courage to combat all obstacles does not stand on the pinnacle of his profession." (Vogl.)

Brand, Juergensen, Vogl, Glénard, Tripier, and Bouveret have made it so easy for us to carry out the hydriatric treatment that we merely have to follow their directions. And why should we not do so?

The Action of Alcohol on the Circulation.—From a physiologic study of the action of alcohol, GUTNIKOW (*Zeitschrift f. klinische Medicin*, Bd. xxi, H. 1 u. 2, p. 153) concludes that the agent causes lowering of the blood-pressure by lessening the irritability of the vasomotor centers; that it favors the action of the heart; and that it does not influence the vagus.

OBSERVATIONS ON THE ULTIMATE DEFORMITIES OF POTT'S DISEASE: THEIR MODIFICATION AND PREVENTION, WITH SPECIAL REFERENCE TO THE MIDDLE REGION OF THE SPINE.[1]

BY ROYAL WHITMAN, M.D., M.R.C.S.,
ASSISTANT SURGEON TO OUT-PATIENTS AT THE HOSPITAL FOR RUPTURED AND CRIPPLED, NEW YORK.

THE neglected cases at our clinics and the results of similar affections in animals show that, although unaided Nature may overcome disease and finally adapt herself to adverse conditions, she is helpless to directly prevent deformity. This weakness affords the opportunity for the orthopedic surgeon, and although the diseases he treats are often directly or by their complications dangerous to life, his ability and success are estimated not by the survival of the patient, but by the degree of final deformity. The immediate treatment of disease must thus be modified by a foreknowledge of its effects, by the environment of the patient, and the intelligence of those who have charge of him. The balancing of the various factors that affect the life and future usefulness of the patient, the necessity of care and watchfulness through many years, and of moral and physical training to attain the best result, make this speciality one of the most difficult as well as one of the broadest and most humane of all the divisions of medicine.

The most important study, then, for the orthopedic surgeon is that of ultimate results—that we may learn of the direct danger to life from disease, and the complications, and thus come to a clearer understanding of its proper treatment, avoiding on the one hand the needless sacrifice of joints by operations that disregard the final well-being of the patient, and on the other hand correctly judging when the severity of the disease or its complications demand operative interference. By this study we learn that ultimate deformity, often attained after many years, is remarkably constant in its appearance, varying with the severity and duration of the disease, and the function of the joint involved, but dependent on natural laws in its development, the voluntary and involuntary effort to relieve pain, the effect of irritation, tension, or pressure on the growth of bone, the force of gravity, and the final compensation for the change in attitude of the affected part.

If we accept the proposition that unchecked deformity may imply unchecked disease, that Nature not only cannot prevent direct deformity, but by its compensations in the growing child may induce secondary distortions, sometimes as exaggerated and important as the original, it follows that we should at

[1] Read at the meeting of the American Orthopedic Association, in New York, September 20, 1892.

all times endeavor to combat deformity, primary or secondary, which observation has shown to be the ultimate effect of the disease we are treating. Pott's disease differs somewhat from similar affections of other joints, in that early diagnosis is essential for absolute prevention of deformity, as the characteristic deformity resulting from destruction of bone cannot be directly remedied. On the other hand, the number of component joints of the spine that may take on the functions of those destroyed, and the position of the part covered by clothing, render this, when properly treated, a favorable region for an ultimately good result from an esthetic point of view.

The ultimate deformities of Pott's disease vary with the region involved. When the two extremities of the elastic column are affected, the opportunity, so to speak, for deformity is small; it is opposed by the physiologic curves of the spine and is easily compensated for. In the cervical region as favorable factors in treatment are the small size and compact tissue of the vertebræ; the pain and early deformity caused by muscular spasm, which calls attention to the affection; the ease with which the head may be supported in proper position, and the amenability of the patient to bed-treatment, which so quickly relieves the symptoms; in the lower dorsal and in the lumbar region, the accuracy with which the spine may be supported and the attitude of the patient, the body being thrown backward, so that the weight falls behind the weakened point.

In disease of the middle dorsal region all these favorable factors are wanting. The affection is often subacute in character and is not recognized in the early stage. The deformity is favored by the normal posterior curvature of the spine and by the attitude of the patient. The disease is aggravated by the movement of the ribs in respiration, and by the movements of the arms suspended opposite the weakened point; and finally, the compensatory changes in the spine and thorax exaggerate the deformity not only in the presence of active disease, but throughout the growing period.

To illustrate: In middle dorsal disease the attitude is often a drooping, sagging one; the inclination of the body is forward; the kyphosis lies between the shoulder-blades; above this point the spine bends sharply forward until the region of the head is reached; below the projection is a marked lordosis; the upper part of the chest is sunken and flattened, so that the shoulders appear elevated; the sternum is prominent, and the ribs compressed from side to side, changing the shape of the thoracic cavity from an elliptical to a cylindrical form. These characteristic changes, well marked in disease of long standing, are indicated even in cases of slight deformity. The kyphosis exaggerates the lordosis and the lordosis exaggerates the kyphosis. The weakened spine causes deformity of the chest, and the deformity of the chest, with the resulting displacement of the thoracic and abdominal viscera, not only increases the tendency to further deformity, but reacts on the general condition of the patient.

The first impression of the ultimate effect of the deformity of middle dorsal disease is misleading, as the attitude of the patient appears to be one of abnormal erectness, of elevation and squareness of the shoulders. This elevation is apparent only, and due to the sinking of the head and shortening of the neck. As the deformity increases, the scapulæ are separated from one another, and the shoulders are relatively and actually displaced forward, so that a straight line may be passed between the heads of the humeri without touching the chest. Ultimate compensation for deformity relates to the proper position of the head. Normally the weight-line of the body passes through the mastoid process, the center of the hip-joint, to the mediotarsal joint of the foot.

Practically this position is finally attained in disease of any region of the spine, and is attained by compensation for deformity in the line of least resistance, which, in the region under consideration, is below the seat of disease. While the lower spine assumes the position of extreme lordosis, the upper part practically continues the angle of the kyphosis. In other words, there is no true compensation in the sense of antagonizing deformity in the upper segment. Thus, in untreated cases the trunk may become almost triangular in appearance, the head sunken into the base between the shoulders, midway from the projecting sternum in front and the kyphosis behind. We may assume, I think, that if the inferior lordosis or compensation in the region of least resistance were impossible, Nature, in the attempt to bring the head into the normal line, would under favorable circumstances produce a straightening and elevation of the superior portion, as it does in disease of the lower region when compensation below is impossible.

The local deformity of Pott's disease is of slight importance compared with the effect on the spine as a whole. If, for example, the destruction of the body of a vertebra is represented by a V-shaped posterior projection, the actual deformity is measured by the length of its arms or its influence on the unaffected vertebræ. This influence does not depend entirely on the extent or severity of the disease, but rather on the situation, and, although we cannot separate cause and effect in treatment, the prevention of unnecessary deformity in the region under consideration overshadows the importance of the disease, as the ultimate weakness and disability of

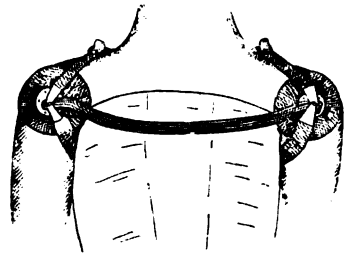
the patient depends upon the deformity, the degree of which is limited, not by Nature, as in the upper and lower segments of the spine, but by the art of the surgeon. The importance of freeing the spine from the influence of local deformity is emphasized by the fact that active disease is usually accompanied by abscess and inflammation of the surrounding soft parts, so that contraction, with final consolidation in the deformed position, may be considered one of the factors in unnecessary deformity. Our efforts should be directed to straightening the entire spine above and below, and thus to limit the kyphosis to the actual extent of disease.

We may now consider how this object may be attained. It may be attained, I believe, by directing our attention to effects as well as to causes. If compensation takes place in the region of least resistance by an exaggeration of the lordosis, this lordosis must be prevented. If the shoulders are displaced forward, overhanging the sunken chest, they must be drawn back to their full limit. If the chest becomes prominent and compressed laterally, this tendency must be restrained. If the head is thrust forward and downward it must be supported, the chin elevated, and the weight thrown backward.

As I wish to call attention particularly to backward traction on the shoulders and restraint of unnecessary motion of the arms, I may explain why I believe this to be an important element in the treatment of disease of the middle region of the spine. In the normal spine, backward traction on the shoulders obliterates the physiologic posterior curvature in the dorsal region, while direct forward motion of the arms increases it. Backward traction makes the chest appear more prominent, but actually diminishes its antero-posterior diameter. Forward movements of the arms act in the opposite way. Thus, backward traction and restraint directly oppose the attitude and approximation to the deformity that is characteristic of the disease under consideration. In addition, it limits voluntary flexion of the spine to the cervical region, while, with the arms free, motion is possible to a much lower point. Backward traction through the clavicles and pectoral muscles tends to raise the upper portion of the chest, and through the serrati muscles to counteract the lateral compression. It assures an increased leverage at the seat of deformity, fixes the spine, and tends to limit the movements of the ribs.

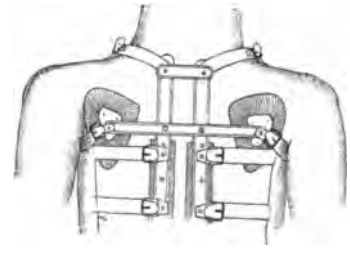
If, in addition, the chin is elevated and supported, we may very effectually oppose the gradual sinking of the upper spine by assuring an habitual attitude of military erectness. The apparatus that I have used has already been described in the *Transactions* of the last meeting. Muscular spasm having been overcome by rest, with extension if necessary, a Taylor back-brace is fitted, the bars being perfectly straight in the lumbar region, assuming that the deformity is moderate in degree. At the fifth dorsal vertebra a cross-bar is placed, terminating in two triangular rubber pads which cover the scapulæ. The brace is then applied, with the aim of drawing the lumbar spine firmly against the back bars. On the front, two saucer-shaped rubber plates cover the

FIG. 1.[1]



prominence of the shoulders, resting on the deltoid muscles, and the heads of the humeri are connected by an unyielding steel bar that passes across the front of the chest. The shoulders are then drawn back to their full limit and the shoulder-plates firmly attached to the neck bars of the brace and the scapular pads behind. While the necessary motion of the arms is not to any extent restricted,

FIG. 2.



the direct forward-reaching movements which tend to increase deformity are entirely prevented.

The straightening of the spine and backward traction on the shoulders bring into relief the forward inclination of the neck and head. On this account I have used a light elliptical steel bar, passing from the brace behind, beneath the chin, with the object of supporting it, and tilting the head backward, to bring the weight of the occipital region into a more favorable position. If this attitude of military erectness can be maintained, the kyphosis is limited to the seat of actual disease, the spine is straightened above and below, and is freed from the deforming influence of the angular projection. In the growing child we may hope by thus changing the pressure to modify the shape of

[1] The photographs illustrate the application of the brace in a case of well-marked deformity in the middle dorsal region.

the unaffected vertebræ so as to conform with the changed conditions, and prevent the gradual increase of general deformity that, in disease of this region of the spine, almost always takes place after apparent cure.

I am on this account very much inclined to doubt the statistics of cure of disease in a certain number of months or years, at least, in the sense of attainment of the best possible result. On the contrary, I believe that in many instances supervision is necessary throughout the entire period of growth, or until observation has shown that the kyphosis in no way influences the unaffected spine, as shown by the habitual attitude of the patient.

The treatment here outlined may be considered proper in disease of the region between the fifth and tenth dorsal vertebræ—in other words, when the center of the kyphosis is at or below the middle of the scapulæ.

A consideration of ultimate deformity shows that such treatment would be manifestly improper in, for example, disease of the third dorsal, when the final result to be expected is an excavation between the shoulder-blades, a flattening of the chest and backward displacement of the shoulders, a deformity quite the opposite of that under consideration. Nor would it be indicated in the lower region, when the inclination of the body is backward, and the lordosis tends to limit the disease; but when the upper portion of the body droops forward and the indications of final deformity are as have been described, I believe that we can by this means directly influence the course of the disease and its results.

As you are aware, there is another type of disease of the middle dorsal region, more often observed in young children, accompanied by evident weakness, in which the head hangs backward or on one shoulder, and the body is supported by the arms; there is the characteristic grunting respiration, the pain and other symptoms that accompany the acute phases of the disease, indicating the necessity for complete relief of the superincumbent weight, by rest on the back.

If, however, middle dorsal disease may act as the cause of deformity through many years of growth, it is evident that bed-treatment can be but a temporary measure, indicated here, as in disease of other joints, by the symptoms.

While absolute rest may not be considered advisable or cannot be enforced, there is a modified form that may be of much importance—that by lengthening the time passed in bed and by periods of rest on the back during the day. The benefits of open air and exercise may thus be assured without injury to the patient, for, as is well known, in weakness or vulnerability of any joint, it is not the temporary activity that is harmful, but long-continued and unrelieved strain.

When the disease is no longer active, massage of the back and abdomen may be employed. The brace may be removed at night and gradually made lighter and more suggestive in character.

I hope that it has been made clear that these remarks apply only to a certain region of the spine, to a selected class of cases, and particularly to a type of disease uncomplicated by great deformity or by acute symptoms; no attempt has been made to consider details of treatment or the management of complications on which ultimate success depends. I shall again call your attention to the principles of treatment by which I believe ultimate and unnecessary deformity may be overcome and avoided: The recognition of the fact that middle dorsal disease, in the sense of producing deformity, may be a factor that operates throughout the growing period; that deformity, direct and compensatory, should be combated from first to last; that attention should be directed to the entire spine and head, in the endeavor to attain a military erectness of attitude that can only be permanently assured by freeing the spine from the influence of local deformity and by developmental changes in the unaffected vertebræ; that backward traction of the shoulders and restraint of unnecessary movements of the arms are important factors in success, and that chin-supports are indicated whenever the inclination of the spine above the seat of disease is forward rather than backward.

These observations are presented as a contribution to the study of the treatment of disease in a region that, if neglected, produces greatest deformity, and in which the least satisfactory results are attained in those who have had the benefit of early and persistent care.

A MATERIALISTIC VIEW OF SEXUAL IMPOTENCE.[1]

BY BRANSFORD LEWIS, M.D.,
OF ST. LOUIS;
LECTURER ON GENITO-URINARY SURGERY AND VENEREAL DISEASES, MISSOURI MEDICAL COLLEGE; CONSULTANT IN GENITO-URINARY SURGERY TO THE MISSOURI PACIFIC HOSPITAL, ST. MARY'S INFIRMARY, THE CITY AND FEMALE HOSPITALS, ST. LOUIS; MEMBER OF THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS, ETC.

IT will be acknowledged without argument, I think, that impotence and allied sexual shortcomings are not generally viewed with any degree of precision or unanimity, and are not looked upon in the definite and distinctive manner in which intermittent fever, scarlet fever, locomotor ataxia, etc., are contemplated. Neither are they treated in any definite and purposive way, each physician having

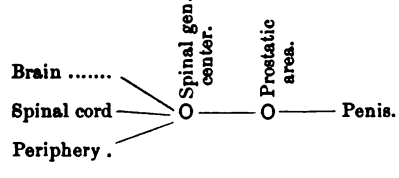
[1] Read before the Mississippi Valley Medical Association, at Cincinnati, October 12, 1892.

his own favorite aphrodisiac formula, which is brought out for each confiding patient who "is beginning to notice a little sexual weakness, a feeling that convinces him that he is not 'as strong' as he was some years ago." It is against this generalized, uncertain, and, in nine cases out of ten, erroneous estimation of this subject, based on lack of thought as to its pathology, that I would inveigh in this paper.

Physiologists teach us that erection—that change in the male organ that is prerequisite to copulation—is brought about by an active increase in the amount of arterial blood flowing into the penis, together with a coincident and abrupt decrease in the amount of venous blood flowing out of it, both serving to gorge the penis and to produce the required rigidity; further, that the influences that stimulate this active arterial inflow and sluggish venous outflow come to these respective vessels from the erigent nerves of the spinal genital center, situated in the sacral region of the spinal cord. Tracing these physiologic sequences still further back, we learn that such a nervous influence which goes out from the spinal genital center originates in one of three different localities of the organism: first, in the brain; second, in the spinal cord; or third, at some part of the periphery. Familiar illustrations of these three sources as originating centers of erigent influence are seen (1) in the man who gets an erection from looking at an obscene picture, in which case the originating impression is in the brain; (2) a painter falls from a house, sustains an injury to his spinal cord, and has a constant erection—priapism—for a week or a month thereafter; (3) the masturbator arouses his erections by friction of the penis, scrotum, or anus.

So, therefore, there are three sources of origin for erection, and, conversely, if either of these three sources becomes diseased, the organism is liable to lose that one as an erigent center. If the conducting mechanism becomes disordered, of course, the same effect is liable to ensue.

Therefore, diagrammatically, we might express the physiology of erection thus:



Our aim should, then, be to study the conditions that produce disorder of any one of these four parts of the economy.

To my mind the most rational and convenient classification of the several varieties of male impotence is that of organic, psychic, and symptomatic, according as the impotence is due to organic defect of the penis, to deleterious psychic influence, or to some diseased condition or agency acting on the organism. The present paper shall be confined to a discussion of the last variety.

That lack of sexual desire and capacity may result from such debilitating and depressing influences as loss of general health from any cause, such as tuberculosis, diabetes, fatigue from exhausting work, prolonged mental effort, etc., is readily admitted and easily understood; the physical and nervous forces are expended through these channels, and little force is left to be expended through the sexual channel. The lack of sexual vigor attributed to the deep-thinking philosopher is, as it should be, classical. The directly sedative effect of certain drugs, such as morphine, the bromides, lupulin, antimony, arsenic, lead, etc., should come under this head—symptomatic; the impotence that these agents sometimes produce is symptomatic of their effect.

There is yet to be mentioned a set of causes that have a more direct connection with impotence than any so far mentioned; that are more commonly overlooked; the elucidation of which, in fact, is one of the chief objects of this discussion. I refer to such causes as masturbation, excessive sexual indulgence, chronic gonorrhea, and other genital affections. The *mode* of their production of impotence is especially important, as if that is not understood, a case having such an origin can hardly be brought to a successful issue.

In order to trace the connection between these affections and impotence, it is necessary to state that the prostatic urethra is now recognized as the sensitive area, the focal point of nervous impressions on the genital system. It is the seat of the pleasurable sensations in the crisis of intercourse. In this act the prostatic area is intensely congested and its nerves are at a high state of tension. It is, moreover, a kind of way-station, a junction for all of the nerve-telegraph lines connecting the various parts of the uro-genital system with one another; and, consequently, it bears the brunt of the injurious nervous impressions reflected from these various parts. If there is chronic irritation in the anterior urethra, from stricture located there, irritation from it is liable to be reflected back to this sensitive prostatic area. If there is excessive sexual intercourse, or repeated masturbation, or persistent sexual excitement (ungratified, perhaps), just so often is there intense vascular and nervous excitement of this area, with possible ejaculatory convulsion. Naturally, under such circumstances we would look for disorder and disease of this area, and if we examine the part through an endoscope

we shall find evidences of such disease in the deep congestion of the mucous membrane, in its acute sensitiveness to contact with an instrument, in the secretion of pus there, in the frequency with which the patient urinates, etc. These are demonstrable physical effects, showing the injury done this prostatic area by the abuse heaped on the genital system in the several ways mentioned. Chronic gonorrhea of the posterior urethra will also result in inflammation of the prostatic area.

Now, when we know that disease of this prostatic urethra is, in turn, capable of so deranging the spinal genital center as to deprive it of its power of sending out the nervous influence inciting erections—that is, that disease of the prostatic area is capable of depriving a man of his virility—then the key to impotence from these disorders and habits is at once furnished us, and the paths for appropriate treatment are also supplied.

The pathologic sequences are therefore these: Gonorrhea, masturbation, excessive sexual indulgence, organic stricture, narrow meatus, adherent prepuce—*anything* of the kind—through the close nervous relationship existing, arouses disease of the prostatic urethra; this, in turn, deranges the spinal genital center, interfering with its control over erections; impotence is the result.

A plan for therapeutic action is equally as plain: First, to remove the habit or the disease that is responsible for the inflamed posterior urethra; then to remedy that posterior inflammation, and in that way restore the health of the genital or erectile center in the spinal cord.

It so happens that disease of the prostatic area deranges the spinal genital center so as to arouse impotence in two very different ways: by causing either increased excitability of that center, or abolished excitability of that center. In the first case, the person begins the act of intercourse, but the genital center is so highly excitable that there is ejaculation before penetration can take place, and copulation is defeated. This is *relative* impotence. In the second case, because of entire lack of excitability of the genital center, no erection is aroused at all, and *absolute* impotence may be the result. Cases in illustration of both of these forms might be detailed, but for lack of time I shall not do this.

The distinction between impotence and hyperexcitability on the one hand, and abolished excitability on the other, should be rigidly maintained, as in treatment it acts as a guide as to whether we should attempt to arouse the dormant function of sexual excitability, or allay the exaggerated excitability of a too highly-strung genital organism. I believe that it is from the failure to make these fundamental pathologic distinctions that we notice such wide variance and reckless empiricism in the treatment of this affection. For instance, there is reason for surprise when we read the diametrically opposed views of such authorities as Gross and Howe as to the propriety of giving potassium bromide in cases of symptomatic impotence. Gross strongly advises the employment of the remedy, "since the parts are to be kept still further at rest by the administration of agents which diminish reflex excitability of the cord, and suspend sexual desires and the power of erection." But in speaking on the same subject, Howe says: "I have no hesitation in saying that the administration of bromides in spermatorrhea and impotence is the source of incalculable injury to the patient."

With a pathologic basis and rational distinctions such as I have given, we are furnished with guiding principles; also, with the local measures properly applicable in different cases of impotence; and, from what has gone before, it certainly would seem that the agents most commonly in vogue, and most promptly prescribed for such patients, viz., aphrodisiacs, are not only least beneficial, but are most harmful; for we have learned that impotence, when arising from genital disturbance, such as masturbation, etc., is the product of inflammation of the posterior urethra; and we know that the manner in which aphrodisiacs cause sexual excitement is by causing congestion of the sexual organs. Hence, if we prescribe them under those circumstances, we are simply adding fuel to the flame by increasing the inflammatory congestion that is already doing the damage. The better plan would therefore be to employ measures that would allay congestion and inflammation of the posterior urethra, and thus restore its *health* and functioning capacity rather than goad it with unnatural stimulants into unnatural activity. The need of a rational mode of treatment, in contradistinction to the empirical modes usually in vogue, is, consequently, readily apparent.

In the present paper I could, of course, hardly go into the details of the treatment of such cases. Their principles are embodied and partly indicated in the pathology as sketched. They consist, as already mentioned, first, in the removal of the exciting cause; second, in the reduction of the localized inflammation of the posterior urethra; third, in the restoration of the sexual capacity and inclination, through a restoration of the health of the prostatic urethra, the spinal genital center, and the general health of the patient.

The subject of removal of the cause need not take time for discussion.

The treatment of the inflamed posterior urethra, I think, is best accomplished by the use of two series of procedures—irrigation of the entire urethra (an-

terior and posterior), with progressively increasing strengths of zinc-sulphate solutions, and, later, the injection of the entire urethra with progressively increasing strengths of silver-nitrate solutions. The zinc irrigation is performed, after the patient has urinated, by introducing a small-sized, soft rubber catheter well into the posterior urethra, and then injecting from a large syringe a half-pint of the solution; on withdrawing the catheter, the patient passes out the solution, thus obtaining another and complete irrigation of his urethra. This is done, at first, every other day; later, with intervals of two or three days between treatments. The strength is gradually increased from ½ to 3 or 4 per cent. This is a preparatory measure for educating the urethra for the second series in the treatment, which is practised with the deep urethral syringe of Ultzmann or Keyes. The patient having urinated, the syringe is filled with a ¼ per cent. silver-nitrate solution; the catheter-stem is lubricated with glycerin (oil would prevent contact of the medicine with the membrane), and introduced until its end reaches the posterior urethra, denoted by the syringe presenting an angle of forty-five degrees with the patient's body. The solution is then injected as the instrument is withdrawn.

The first of these injections should not be stronger than ¼ per cent., so that the sensibility of the patient may be tested; this varies very considerably in different persons. The injections are at first given with two or three days' intervals, which are gradually lengthened as the strength of the solution is increased. I seldom use a stronger solution than one of 3½ or 4 per cent. If these measures fail, we may have recourse to the endoscope, cold steel sounds, the psychrophor, perineal douches, etc., which are all good in certain cases.

Systemic tonics are frequently indicated. If there is a tendency to hyperesthesia, continued irritability, etc., of the prostatic urethra, I should, perhaps, advise the use of the bromides; while if the opposite condition existed, abolished irritability or excitability of that region, I should not prescribe them. Aphrodisiacs, instead of being the first, should be the last of the medical armamentarium brought to bear on the case. I believe that the field for their use in such cases is indeed very limited; that their only application could be in case the several restorative measures mentioned had accomplished the ends desired, the health of the parts had been reëstablished, and yet excitability had not returned; then it *might* be proper to stimulate the latent sexual function with some of the aphrodisiacs, such as phosphorus, cantharides, damiana, etc. These might then manifest a beneficial effect in a way that was not expected of them—that is, if there were any psychic element in the case, they might stimulate to one pretty good erection, which would have the moral influence of restoring the confidence of a timid patient.

1006 OLIVE STREET.

HEIDENHAIN'S MODIFIED MICRO-TECHNICAL METHODS AND THEIR ADVANTAGES FOR THE PHYSICIAN.

BY A. P. OHLMACHER, M.D.,
PROFESSOR OF EMBRYOLOGY AND BIOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO.

IMPROVEMENTS in the methods of microscopic research have become so numerous that it confuses one to keep abreast of them. Scarcely is a method or formula proposed ere it is modified, extended, or superseded. The technique of the last year is becoming old; and in all this maze of new processes the carmine and hematoxylin microscopist of ten years ago is at sea.

About ten years ago Flemming gave a summary of his wonderful studies of the nucleus, and in this work (*Zellsubstanz, Kern- und Zelltheilung*, Leipzig, 1882, pp. 379–384) he describes the precise technical methods which he devised, and by the aid of which he was able to make his remarkable contributions to the study of cell-anatomy. Flemming's work inaugurated a new era, the results of which are attested to the present time by the advances in our knowledge of nuclear division, of fertilization of the ovum, etc., results which are felt in every department of biologic science.

Of all methods proposed for the accurate study of animal tissue, whether normal or pathologic, that devised by Flemming, and since improved by him, must remain as a foundation. As described by Arthur Bolles Lee, in his valuable little handbook (*The Microtomist's Vade Mecum*, A. B. Lee, second edition, London, 1890), under the head of the "general method," the modified Flemming's method becomes easily available for every laboratory student. The steps of this process consist in *fixing* the *perfectly fresh* tissue in Flemming's chromo-aceto-osmic acid mixture, *dehydrating* in alcohol, *clearing* in cedar-wood oil, *imbedding* in paraffin, *fixing sections on the slide* by Mayer's albumin fixative, and *staining* with gentian-violet, safranin, or some other dye. That this procedure is highly serviceable in the laboratory, and that in the hands of experienced manipulators its results leave little to be desired, must be the verdict of everyone who has mastered its details. But the method is not free from objections, and in private work or in inexperienced hands it has been found most difficult. The objections to the method may be considered in detail, with regard to the fixing solution: 1. It is difficult to prepare. 2. It does not keep well, and must be stored in glass-stoppered bottles. 3. The

osmic acid required is not easily obtained outside of the large cities, and is expensive. 4. It will penetrate only small pieces of tissue. 5. It decomposes in the presence of fat-containing tissue, and blackens this tissue to such a degree as to hinder further study. 6. It must always be freshly prepared, cannot be used a second time, and cannot be made extemporaneously.

It is evident that most of these objections would occur in the work of the student removed from the resources of a well-equipped laboratory.

The country practitioner would have difficulty in overcoming many of these disadvantages.

As regards the cedar-wood oil clearing method, the results are most perfect, providing *pure* cedar-wood oil can be obtained; but in the writer's experience, the proper cedar-wood oil recommended by Lee (*loc. cit.*, p. 142) is obtained with great difficulty in this country.

Fixing sections on the slide previously to staining, after the directions of Mayer, while an advance of much utility in the process of aniline-staining, nevertheless has the disadvantage that the film of coagulated albumin often interferes with the best penetration of the staining agent, and often retains some of the color, constituting a source of possible confusion as to the appearance of a section. This is particularly true when contrast stains are used in producing the so-called "double stains," the second stain invariably being retained by the albumin. Another source of trouble with the albumin fixative lies in the difficulty with which wrinkles are removed from thin sections after being placed on the slide.

Among the various substitutes for the Flemming method, probably the most valuable contribution is that of M. Heidenhain, recently set forth in detail (*Ueber Kern und Protoplasma.* Festschrift, Albert von Koelliker, Leipzig, 1892). The process proposed by Heidenhain consists of the following steps preparatory to section-cutting: fixing in corrosive sublimate, dehydrating in alcohol, clearing in bergamot oil, and imbedding in paraffin. After the sections are cut they are fixed on the slide by Gulland's water method, and then subjected to a special washing process, by which the excess of sublimate is removed.

The fixing solution is made by saturating a ½ per cent. solution of common salt in distilled water with corrosive sublimate, heat being employed to aid the solution. It is intended that the solution shall be super-saturated with the sublimate, and for this end an excess of powdered sublimate should be kept at the bottom of the bottle holding the stock solution. Pieces of tissue are cut into cubes not larger than three-eighths of an inch in dimensions, immediately after removal from the living subject, and dropped in some of this solution. From a half-hour's to an hour's immersion is sufficient for perfect fixation, when the object is brought directly into 95 per cent. alcohol. In a couple of hours the alcohol may be replaced by fresh alcohol of the same strength. After twenty-four hours the tissue is ready for clearing; or it may remain in the alcohol until required for use.

For clearing, we remove our object to pure bergamot oil (Heidenhain specifies that the oil should have a well-marked green color), in which it remains for from two to twenty-four hours, according to its size. The cleared object is now removed to a bath of equal parts of soft paraffin and bergamot oil, kept at the melting-point, then removed to paraffin of which the melting-point is 45° C. (for from one hour to two hours), then to paraffin that melts at 58° C. (for from one hour to two hours). The final imbedding is made in paraffin that melts at 58° C. Thin sections are now cut with the microtome.

The water method of fixing sections on the slide as originated by Gulland (*Journal of Anatomy and Physiology*, xxvi, vol. vi, part i, 1891) is carried out by removing the ribbon of sections to a vessel of water, of which the temperature is somewhat below the melting-point of the paraffin with which the sections are infiltrated. On coming to the surface of the water the sections flatten perfectly, and a clean slide may be cautiously immersed under the sections, which are guided to the proper point by a camel's-hair brush, after which the requisite number of sections are cut from the ribbon and the slide is carefully lifted from the dish of water. The excess of water is allowed to drain away; the slide is placed in a warm oven, of which the temperature is kept just below the melting-point of the paraffin, and here the slide remains until all the water has evaporated. The paraffin may now be carefully melted, and the sections will be found securely fixed to the slide.

It is evident to anyone who has practised Gulland's excellent method that great difficulty exists in preventing the sections from assuming an improper position on the slide as it is lifted from the dish of water—this being particularly true when single sections are manipulated. Heidenhain's modification of the water-fixing method is as simple as it is ingenious and valuable. He moistens the surface of a clean slide with a clean rag which has been dampened with distilled water. A drop of water is now brought to the center of the slide, over the surface to be occupied by the section; the slide is then removed to a clean copper plate, which lies on the surface of a warming-oven or water-bath. The temperature to which the copper plate is to be raised should be slightly below the melting-point of the paraffin employed in imbedding. When the slide, with its drop of water, has been warmed, the section

is placed in position on the drop of water, where it at once flattens perfectly. The excess of water is removed by a piece of blotting-paper, and the slide remains on the warming-plate until the water has evaporated (for from two to twenty-four hours). Now the paraffin surrounding the section is cautiously melted and the section is fixed to the slide.

The advantages of this procedure over any method in which an adhesive mixture is employed in fixing the section are obvious, and a little practice will convince anyone of its extreme usefulness.

For removing the paraffin adhering to the slide about the section, Heidenhain, in common with most German microtomists, employs xylol, but for practical purposes ordinary benzine will be found to answer perfectly. The slide is plunged into a jar of benzine and allowed to remain a few minutes, when it is removed to another jar of 95 per cent. alcohol. The alcohol-bath is prolonged to from an hour and a half to six hours, after which the section is ready to have the excess of corrosive sublimate washed out.

All microtomists who have employed sublimate as a fixing agent have noted the crystals of the salt which remain in the completed specimens, and thus far no infallible method has been devised for obviating this difficulty. Heidenhain's method, however, fulfils all the indications, and by its aid the great drawback to sublimate fixation is removed.

After the bath in alcohol, Heidenhain treats the sections with pure tincture of iodine (the *U. S. P.* tincture is a proper strength). The tincture is allowed to act for about fifteen minutes. A shorter time has been found sufficient, however, in our experience, when very thin sections are being prepared. After the iodine treatment the section is washed with 95 per cent. alcohol to remove the excess of the iodine, and then the slide is transferred to a jar of 95 per cent. alcohol to remain till no more iodine dissolves out of the section.

This treatment removes with absolute certainty all crystals of sublimate; and, as Heidenhain states, it does not appear to interfere with any subsequent staining method.

Now that the section is free of the troublesome sublimate crystals, it may be stained with any of the vegetable dyes or with any anilin coloring reagent, as the requirements of the case dictate. We have found only one staining agent which failed to give the same results as in tissue fixed in Flemming's solution, viz., safranin—the resulting stain being here more faint and less precise. With gentian-violet and eosin the results are exceedingly beautiful.

In the particular studies in which he was engaged, Heidenhain employed hematoxylin and the Biondi-Ehrlich triple stain as coloring agents, and for which he proposes some very valuable modifications and directions. It is not the purpose of this communication to consider the subject of staining. Suffice it to say that with the section prepared as described the worker may stain with any agent and for any purpose desired.

Concerning the advantages of the methods proposed by Heidenhain, it will be apparent that they are peculiarly applicable to the work of the medical man.

Since the crystal-formation of corrosive sublimate has been overcome, it offers a variety of desirable features as the fixing agent for general use. 1. It is cheap and readily obtained everywhere. 2. In an emergency an extemporaneous solution could be prepared by dissolving the surgeon's corrosive sublimate tablets to saturation in water. 3. The solution made as described is stable, and may be repeatedly employed for fixing, without deterioration, though on account of its cheapness there would be no particular object to economize in this manner. 4. It is not injured by exposure to light, and may be kept in cork-stoppered bottles. 5. It penetrates better than Flemming's solution, so that pieces of the size of three-eighths of a cubic inch may be fixed in it. 6. It does not blacken fat-containing tissue.

There are two disadvantages in the sublimate fixing solution: it is instantly spoiled by contact with metallic substances; and tissue fixed in it becomes brittle if kept long in alcohol (Lee, *loc. cit.*, p. 32). Wooden tooth-picks, quills, glass rods, etc., may be employed in transferring the objects to and from the solution, thus avoiding contact with metal instruments. To prevent the tissue becoming brittle all that is necessary is to imbed it early, for no more perfect method of preserving microscopic objects can be desired than having them sealed in a block of paraffin.

For the purposes of medical men removed from laboratories, the sublimate method of fixing tissue offers many inducements. The surgeon can carry with him to the operation an ounce of the fixing fluid, and as soon as the tissue is removed it may be cut in small pieces, which are dropped in the bottle of sublimate solution. At the end of one or two hours the pieces are removed to a bottle containing 95 per cent. alcohol, where they may remain until they are sent to a pathologist for examination.

Were the foregoing very simple procedure universally adopted by surgeons a vast quantity of valuable material would be saved which now goes to waste. Many questions in pathology await solution which can only be obtained by the accurate examination of a large amount of perfectly fixed tissue; and to further this solving of present difficult points every practitioner of medicine who uses the scalpel

may contribute, if he will but adopt a precise method of fixing and preserving the specimens obtained in his work. Not only this, but an accurate diagnosis of tissue is often hindered by faulty preservation of the specimens. What pathologist has not been wrung with anguish to find some specimen of great value lost to him because it was macerated, or even decomposed by immersion in weak alcohol?

Let Flemming's solution or sublimate solution be properly employed by the physicians of this country, and our scientific students will contribute their share with the European investigators in the many absorbing problems of the day.

GENERAL REPORT OF AN EXAMINATION OF 415 YOUNG DEAF-MUTES, IN REGARD TO THE NASAL CHAMBERS, EARS, AND ORGANS OF PHONATION.

BY ARTHUR AMES BLISS, M.D.,
LARYNGOLOGIST TO THE GERMAN HOSPITAL; SURGEON TO THE THROAT, NOSE, AND EAR DEPARTMENT OF ST. CLEMENT'S HOSPITAL, PHILADELPHIA.

DURING the past year I made a careful examination of the aural, throat, and nasal conditions of 415 deaf-mute children, inmates of the Pennsylvania Institution for the Education of the Deaf and Dumb.

The cases thus examined may be divided into three groups, the first being the pupils of the sign department, whose education has been conducted entirely by means of the "sign language," and with whom there has been no attempt made at oral training. Of the 415 pupils examined, 303 belong to this group of "signers." Group 2 is composed of pupils of the oral department, whose training is strictly oral, the aim being to enable the pupil to use and understand verbal language. Of the total number examined, 91 pupils belong to this group of "orals." Group 3 is made up of pupils who have been given a trial in the oral department, but, failing to succeed in this system, have been sent to the sign department, the attempt at oral training being abandoned. Of the 415 pupils 21 belong to this group of *oral failures*.

In considering the general results of examinations, only decided pathologic conditions will be considered in this paper. The detailed account of each case will be prepared and published at a later date. The mere enumeration of lesions is of general interest, but, to estimate the importance of such lesions in their influence on the training and education of the pupil, the reader must know what relations these bear to all the parts involved in phonation. In short, the report of conditions found in the nose, post-nares, pharynx, tongue, palate, tonsils, larynx, and ears, in each individual pupil, must be tabulated and put in form for easy reference. This will be done at a future date.

	Group 1.	Group 2.	Group 3	Total.
NARES.				
Deformities, consisting of deviated septa, exostoses, hypertrophied turbinals, causing partial or complete occlusion of one or both nares	65	14	4	83
Posterior hypertrophies of turbinals	21	1	2	24
Impactions of middle turbinals against the septum	14	3	0	17
Synechial bands between the septum and lower turbinals	2	2	0	4
Sclerosis of mucous membrane in the anterior nares	35	7	5	47
Sclerosis in posterior nares	13	8	0	21
Atrophy of nasal mucous membrane	20	2	0	22
General catarrhal condition due to vasomotor paresis without deformities	13	3	0	16
Adenoids in vault of pharynx, causing partial occlusion of this space or pressure upon the Eustachian openings	57	14	8[4]	79
TONGUE.				
The frenum was abnormally short	24	0	1	25
Hypertrophy of the lingual tonsil worthy of note	12[1]	1	0	13
PALATE.				
Abnormally high, narrow, and gothic-arched	8	0	2	10
Deflection of raphé from median line, most frequently to left side	6	0	0	6
Double uvula	2	0	0	2
Relaxed and pendulous soft palate	2	0	0	2
TONSILS.				
Large tonsils which filled the spaces between the faucial pillars of their own sides of the throat, but were not adherent to these bands, or did not cause serious occlusion or pressure upon surrounding parts	32	16	1	49
Tonsils greatly hypertrophied, diseased, and causing pressure upon palate or tongue, and greatly occluding the faucial space	18	5	4	27
Adhesion between tonsil and faucial pillars, the tonsil being encapsulated	30	6	5	41
Narrowing of fauces by broad posterior pillars with high attachment to the pharyngeal walls	11	0	0	11
PHARYNX.				
Simple hypertrophy of mucous follicles	23	3	2	28
Sclerosis of mucous membrane with follicular hypertrophy	9	6	0	15
Simple sclerosis of mucous membrane	55	20	5	80
Atrophy of mucous membrane	8	1	1	10
Venous engorgement worthy of note	22	2	3	27
LARYNX.				
Epiglottis abnormally depressed	14[2]	2	0	16
"Infantile" epiglottis	2[3]	0	0	2
VOCAL BANDS.				
Apparently normal in color and ordinary movement	83	63	12	158

[1] Six of these were in pupils between 14 and 22 years old; the other six in pupils under fourteen years of age.

[2] Only four being in pupils under fourteen years of age.

[3] Both being in pupils over fourteen years of age.

[4] These eight cases all occurred in subjects between twelve and nineteen years old.

Most of the pupils of group 1 presented vocal bands of a dull-gray color, bowing or wavy at their free margins, or so thin and narrow as to be unusually obscured by the ventricular bands. Efforts at phonation showed the adducting muscles to be weak and inefficient.

EARS.

The limits of this paper will not permit of more than a general enumeration of gross lesions. The majority of pupils presented drum-heads that were retracted, dull in color, and feebly movable. These will not be noted here, but only such cases of plastic otitis media as displayed adhesion of the drum-head, in whole or in part, or other destructive process. It is left for the detailed report to give the aural condition in each individual pupil.

	Group 1.	Group 2.	Group 3.	Total.
Plastic otitis media, limited as already explained	75	20	16	111
Adherent and immovable drum-heads	94	28	3	125
Very feebly movable drum-heads	43	12	4	59
Atrophic drum-heads	2	0	0	2
Engorgement of manubrial vessels and pinkish tint of drum-head	6	3	1	10
Calcareous deposits in drum-head	14	2	0	16
Double perforations with otorrhea	9	5	3	17
Single perforations with otorrhea	10	5	1	16
Cicatrized perforations, many of them covered with new membrane	32	13	3	48
Double impactions of cerumen	14	5	0	19
Single impactions of cerumen	15	7	2	24
Atresia of external auditory meatus	2	0	0	2
Undeveloped auricles with absence of auditory meatus	1	0	0	1
Foreign bodies	6[1]	0	0	6
Desquamative otitis externa	4	0	0	4
HEARING.				
A slight trace of hearing	6	17	2	25
On contact only	62	6	10	78
Fair hearing	0	2	0	2

PERSONAL AND FAMILY HISTORY.

Origin of Deaf-mutism.	Group 1.	Group 2.	Group 3	Total.
(*a*) From birth	105	22	10	137
(*b*) Acquired	178	65	11	254
(*c*) Uncertain	20	4	0	24

Causes of deaf-mutism given without the division in separate groups:

	Cases.
Spotted fever	43
Scarlet fever	66
Measles	17
Meningitis	29
Typhoid fever	5
Pneumonia	2
Diphtheria	2
Malaria	2
Smallpox	1
"Colds"	13
Convulsions	10
Black fever	3
Traumatism	9
Spinal meningitis	5
Inflammation of bowels	2
Cholera infantum	1
Shock	1
Mumps	1
Bronchitis	1
Catarrhal fever	1
Sunstroke	1
Otitis media	9
Whooping-cough	2
Teething	3
Croup	1
Eczema	1
Unknown (exclusive of 137 pupils credited as being deaf-mutes from birth)	49

[1] Consisted of cotton, stick of wood, paper, and a piece of tin, all showing evidence of having been in the ears for a long time.

HEREDITY.

The parents were relatives in 24 cases; deaf-mutes in 7. Pupils possessing other deaf-mute relatives, 94.

I would again call the reader's attention to the numbers composing each group: Group 1 (the sign-language pupils) being 303, Group 2 (the oral pupils) being 91, and Group 3 (the *oral failures*) being 21 in number.

Especial attention is called to these *oral failures*, and by glancing at the figures it will be observed that, in abnormalities of the post-nasal space, pharynx, and tonsils, this group is particularly rich. The difficulties for a deaf-mute, under the best circumstances, to acquire verbal language are sufficiently great to make a successful result seem almost like a miracle. With a post-nasal space stuffed by enlarged adenoids, the choanæ further occluded by posterior enlargement of the lower turbinated bodies, the tonsils so hypertrophied as to press upon the soft palate and tongue, and to greatly lessen the caliber of the fauces, it is not surprising that the would-be deaf-mute speaker should become one of the army of "oral failures." I think that if these statistics show nothing else, they indicate the need for careful inspection of the entire vocal apparatus in all deaf-mutes entering upon oral training. They also show the necessity for such judicious treatment as will place the vocal apparatus of the pupil in the best condition for the various parts to perform their functions. I believe that many deaf-mute children have failed as oral pupils, or have not attained a satisfactory degree of ability in phonation, not because of mental inaptitude, or of neglect upon the part of their teachers, but purely because of anatomic defects that might have been corrected.

The large number of pupils showing the existence of plastic otitis media, but still having some sense of hearing by bone-conduction, suggests the possibility of benefit from modern operative methods.

The same suggestion would apply to cases of acquired deaf-mutism, in which bone-conduction was fairly good, and the lesion distinctly a sclerosis of the middle ear or a necrotic process. These procedures would consist of excision of the useless drum-head with the malleus, now acting as obstructors to instead of conductors of vibrations, or of Urbantschitsch's or Miot's method of mobilization. Certainly, in a limited number of cases, it would be quite justifiable to perform the preliminary operation of making an ample perforation in the drum-head, and then be guided in regard to farther procedures by the results thus obtained.

The reader must not be misled into exaggerating the importance of certain data given in this report. I would refer, in this connection, chiefly to the subject of sclerosis of the pharyngeal mucous membrane. This appears as a very common condition in normal subjects, who are never conscious of any inconvenience therefrom. It is the degree of sclerosis in which the process borders upon true atrophy that renders it worthy of notice. However, it indicates the result of inflammation or malnutrition, and appears to me to be more advanced among the cases reported here than among normal children of the same age.

This report may serve as a partial answer to the question so often asked, why certain deaf-mutes, of average mental capacity, either fail completely as speakers, or make sounds almost unintelligible, except to those long associated with them. In many instances, the causes may lie hidden deeply in some atrophied cerebral center, but it should certainly encourage the oral teacher to know that, in other cases—and, perhaps, a large proportion, too—the causes of failure are mechanical and within easy reach.

CLINICAL MEMORANDUM.

URTICARIA AFTER THE ADMINISTRATION OF PIPERAZINE.

BY T. HEWSON BRADFORD, M.D.,
GYNECOLOGIST TO THE OUT-PATIENT DEPARTMENT OF THE PENNSYLVANIA AND HOWARD HOSPITALS, PHILADELPHIA.

THE merits of piperazine as a uric acid solvent, and its influence upon the uric-acid diathesis have attracted considerable attention in the profession. Its easy mode of administration is a great boon to those patients who have been compelled to take for any length of time colchicum, potassium iodide, lithium and sodium carbonates, etc. Although it has been strongly advocated as being perfectly harmless, yet its administration is not entirely free from unpleasant results, as will be seen in the notes of the case to be reported.

On the 9th of September, 1892, I was consulted by Miss I., seventy years old, for a painful swelling of the right knee, which she attributed to rheumatism, but which on account of family peculiarities and her nervous temperament I diagnosticated as gout.

Having treated her on several occasions for digestive disturbances, I decided not to give her colchicum, but prescribed phenacetin and salol, and topic applications. These not relieving the trouble, I gave

℞.—Piperazin. . . . . gr. lxiv.
Aquæ destil. . . . . f ℥iv.—M.

S.—One teaspoonful in half a glass of soda-water, at 9 and 11 A.M.; 3, 5, 7, and 9 P.M., and on retiring; thus in the course of the day fourteen grains of piperazine.

The treatment proved very acceptable to the patient, agreed with the digestion, and was followed by marked improvement.

On the sixth day of the administration of the medicine the patient complained of an annoying burning and itching of the skin, which proved to be dependent upon urticaria.

Previous to this occurrence her skin had always been singularly free from eruptions of all kind, and the inference was that the medicine administered gave rise to the trouble.

Piperazine has been highly recommended as a remedy for pruritus in gouty or rheumatic patients.

Dr. William S. Disbrow, in *Notes on New Remedies*, March, 1892, says "that it affords great relief from those itching symptoms which are generally termed pruritus, whether occurring alone or with rheumatic or gouty pains."

In my case there never had been any evidence of pruritus, although the woman was of a marked gouty diathesis.

Careful attention was given to her diet, and there was no gastric disturbance; in every respect the medicine agreed with her, with the exception of the cutaneous trouble which, while annoying, was not attended with any dangerous symptoms.

I may add that the gout entirely disappeared and to the present time there has been no return.

125 SOUTH EIGHTEENTH STREET.

NEW INSTRUMENT.

NEW INSTRUMENT FOR THE CURE OF HERNIA.

BY ALEXANDER DALLAS, M.D.,
OF NEW YORK.

THE treatment of hernia is still so unsatisfactory that any means that will simplify the process and improve the results must prove of interest to the profession. The new instrument devised by me for this purpose is applicable in inguinal and femoral herniæ (which form 90 per cent. of all the cases), and its simplicity and efficiency will prove its own indorsement. As shown in the accompanying cut, it consists of a head and shaft or handle. The head is flattened, and its point smooth and blunted. Its anterior and posterior surfaces and outer edge are covered with fine, needle-pointed serrations, while its inner edge is smooth and occupied by a deep groove. The cover of the shaft is movable, and, while the instrument is being introduced, is pushed forward so as to cover completely all the serrations and present a perfectly smooth, rounded surface. By removing the

end screw, the instrument can be taken apart and easily cleansed.

Method of using. The patient is placed on his back, with the pelvis elevated; the parts are thoroughly cleansed in the usual way, and local anesthesia is produced by the injection of a 4 per cent. cocaine-solution.

A transverse incision, one inch long, is then made through the integument, the subcutaneous tissue separated, the cord gently lifted to the inner side, and the instrument introduced with the groove embracing the cord. It is slowly insinuated along the canal until its end is felt free in the abdominal cavity; the cover is then drawn back, exposing the serrations, and the instrument is carefully withdrawn, abrading and freshening, in its withdrawal, the whole interior surface of the canal, except the narrow portion where the cord lies, which is protected by the groove. During withdrawal, also, the fingers are pressed over the canal to prevent unnecessary effusion of blood. The external wound is at once firmly sealed with iodoform collodion; a firm compress is applied to keep the walls of the canal in apposition, and is kept in place by adhesive plaster and

a spica bandage. There is no reaction, and the operation is devoid of danger. In two or three days firm agglutination has taken place, and the canal is obliterated. A light truss with a grooved pad (described elsewhere) is then applied, and the patient allowed to go about. The truss can be discarded in one or two months, when the parts have acquired sufficient strength.

To attain the best results four things are essential: 1, perfect asepsis; 2, an instrument large enough to slightly distend the canal; 3, the avoidance of unnecessary effusion of blood; 4, the use of a grooved pad which will give efficient support without undue pressure over the canal.

Indications. It can be used in all cases of congenital inguinal hernia, even of long standing; in all "recent" cases of acquired inguinal and femoral herniæ, or even in cases that have lasted some time when the normal contour of the canal still persists. It will thus be seen that its field of usefulness is very wide. Unlike the Heaton and the Schwaller methods, it is not painful, while its mode of application is exact, and its results prompt and definite. By its use truss-treatment can be largely dispensed with, and the operation for the "radical cure," with its dangers and uncertainties, can be limited to cases of long-standing associated with adhesions or other complications.

The instrument is made by Tiemann & Co., whom I have to thank for their courtesy and promptness in carrying out my ideas. In the instrument for femoral hernia the handle is suitably curved and the groove for the femoral vein is slightly wider and more shallow, while, in the after-treatment, the leg is kept well flexed, so as to permit of the better approximation of the walls of the canal.

MEDICAL PROGRESS.

Ectopic Pregnancy.—Based upon 56 personal observations, MARTIN (*Centralbl. f. Gynäkologie*, 1892, No. 39, p. 771), at the recent International Gynecological Congress, discussed the subject of ectopic pregnancy. Etiologically he expressed the view that in most cases the ovum meets with a mechanical obstruction, though this is not always demonstrable. Ovarian insertion must be admitted, though relatively rare. The most common seat of lodgment of the ovum is in the tube, and especially in the ampulla (49 cases of 55). Of 55 cases of tubal pregnancy the ovum occupied the right side in 34, the left side in 22. Soon after the lodgment of the ovum a tubal decidua of irregular formation develops; complete enclosure of the ovum seems never to take place. The tubal serotina is a less homogeneous membrane than the uterine serotina. Investigation has not been able to determine that the fetal is different from the uterine placenta. The muscular tissue of the tube does not undergo progressive hypertrophy, but on the contrary presents pronounced atrophy. The peritoneum is irritated in greater or less degree. The remainder of the tube is scarcely changed, except that the fimbriated extremities are relaxed. In the 55 cases of tubal pregnancy the portion of the tube directed toward the broad ligament was the seat of insertion of the ovum in only 11 cases.

In the course of the gestation the uterus increases in size. The development of a sympathetic uterine decidua is constant, but seldom of equable distribution. The decidua may be absorbed, while the ectopic pregnancy continues. Most cases of ectopic pregnancy terminate by tubal abortion—expulsion of the ovum through the abdominal opening of the tube. This is most common in the first three months: Of 56 cases it occurred in the first month in 15, in the second month in 13, in the third month in 11, in the fourth month in 7, in the fifth month in 4, in the sixth month in 2, in the seventh month in 1, in the eighth month in 2, in the ninth month in 1. Pregnancy may also be interrupted by influences acting unfavorably upon the uterus. The interruption is most commonly the result of the inevitable physiologic incongruity between the growing ovum and its repository. Tubal abortion results from the rupture of delicate bloodvessels, in the absence of an adequate muscular development. Rarely, spontaneous recovery occurs, but the convalescence is tardy, and even when the danger of shock has passed, the possibility of recurrent attacks of disintegration and suppuration cannot be entirely eliminated. Localized pelvic peritonitis is frequently found. Of 241 cases tabulated by Schauta that were left to themselves, rupture and hemorrhage into the abdominal cavity occurred in 128; rupture with the formation of a hematocele and peritonitis occurred in 22; rupture into the bowel in 34; rupture into the bladder in 9; rupture through the ab-

dominal walls in 5; rupture through the vagina in 4; expulsion through the uterus in 6; incarceration (ileus) in 4; lithopedia without discomfort in 29. Martin observed 5 cases, in all of which death took place. Only exceptionally does the usual train of symptoms of pregnancy appear, but some of the symptoms are always present. Early typical symptoms are wanting and are replaced by signs of peritoneal disturbance. Menstruation is irregular: sometimes absent, sometimes scanty, sometimes profuse. In the first three months the diagnosis can only be made with probability. The greatest importance is attached to recurrent attacks of pain and anemic collapse. In the question of prognosis the life of the child scarcely enters. Of 265 cases treated by expectant measures, 63.1 per cent. terminated fatally; while of 585 operated on, 76.6 per cent. recovered. The best treatment is believed to be celiotomy with complete enucleation of the gestation-sac.

The Identity of Syringomyelia and Leprosy.—An important paper was recently read by DR. ZAMBACO before the French Académie de Médecine on the identity of syringomyelia and leprosy. He had seen in Constantinople a considerable number of lepers, and became gradually convinced that the affection described as Morvan's disease, or syringomyelia, was no other than leprosy. He had also carefully studied the subject in Brittany, where syringomyelia had been first described, and where later on the disease was reported to occur frequently. He observed in all cases which were detained in hospital an incurable deformity of fingers and various other trophic changes, such as the loss of one or more phalanges, muscular atrophy, anesthesia, or ulcerations, and all these symptoms he had previously observed in lepers. Photographs of a large number of these were shown, which indicated a great resemblance between the two affections. Names of localities, such as *lambeseller—i.e.*, "leper village"—and of cemeteries, bridges, etc., which are still called *des lepreux*, testify to the fact that the disease has been endemic in Brittany since the earliest times. Old pictures of saints and fairies represent lepers just as they appear now. In a picture, for instance, of the miracles of St. Vincent, the saint is represented as restoring to a leper child its missing fingers. Dr. Zambaco believes that he is justified in concluding from stones, figures, and other objects found in many graves in Brittany that leprosy was imported into the country by the Phenicians. He had discussed the subject with many physicians in various hospitals in Paris also, who fully admitted the resemblance between the affections. A case in Charcot's ward, which had been diagnosticated as typical syringomyelia, and in which several fingers had been painlessly amputated, was brought to the Hôpital St. Louis and introduced to MM. Vidal, Besnier, Fournier, and Hallopeau, all of whom declared the patient to be a leper. In some Oriental countries leprosy assumes a much severer form than it does in Brittany, where the disease often remains abortive, and appears to inexperienced observers as an entirely different or even perfectly new disease, and as such Morvan described it. His syringomyelia, however, comprises, according to Dr. Zambaco, various diseases which should be separated, one division clearly representing "lepra anesthetica," as Von Daniellsen has described it, while others still lack an exact description. Permanent residents of Constantinople are not subject to leprosy, and in those rare instances in which it has been acquired it has always been found that the ancestors of the patients had lived in the Cyclades or other islands of the Greek archipelago.—*The Lancet*, October 8, 1892.

THERAPEUTIC NOTES.

The Medical Treatment of Perityphlitis.—SAHLI considers that the first step in the management of a case of perityphlitis is to interdict the ingestion of food and drink by the mouth, to control vomiting, and to prevent meteorism. The patient can be nourished by the administration once, twice, or thrice daily, of the following enema at a temperature of 104°:

℞.—Eggs	no. iij.
Sodium chloride	gr. xlv.
Peptone (dry)	ʒijss.
Beef-tea	ʒvj.—M.

To control thirst six ounces of pure water at a temperature of 104° may be given by the bowel as required. If the thirst is thus not satiated, the patient may be permitted to take from time to time a mouthful of cold water. A second important consideration is the systematic employment of opium, preferably in the form of the wine. Of this ten drops are at first given; then every hour, and later every second hour, from five to seven drops are given. As soon as the pain has disappeared, the patient takes but five drops every three hours. If the pain returns, the process is rebegun with ten drops. Locally, an ice-bag is at first applied, which is subsequently replaced by cataplasms. When the pain has entirely disappeared, the opium is withdrawn, and the administration by the mouth of such food as eggs, bouillon, milk, and chopped meat is attempted. Constipation is to be relieved by means of enemata; purgatives are to be avoided. The patient can get out of bed when all evidence of fever has disappeared and pressure in the right iliac fossa occasions no pain.—*La Semaine Médicale*, No. 51.

For Dysentery.—

℞.—Vini opii	gtt. xv.
Acid. tannic.	℈ij.
Acid. boric.	ʒiv.
Aquæ	fʒxijss.—M.

S.—By enema during twenty-four hours, in four equal parts, to each of which is added twice or three times as much water hot enough to make the temperature 96.8°. The enemata should be retained for a minute or two minutes; it is well to precede the first by a purgative dose of castor oil.

LIEBERSON, *La Semaine Méd.*, No. 5.

For Cholera.—Among the many recommendations for the treatment of cholera may be mentioned that of KIRCHNER (*Berliner klin. Wochenschr.*, 1892, No. 43, p. 1073), who proposes the administration by the mouth of full doses of hydrochloric acid in 1 per cent. mucilaginous solution, together with the injection high up into the bowel of large quantities of a ½ per cent. solution of chloroform, or of a 0.15 per cent. solution of hydrogen dioxide.

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SATURDAY, NOVEMBER 19, 1892.

REPORT OF THE PENNSYLVANIA COMMITTEE ON LUNACY.

THE recently issued report of the Committee on Lunacy of the Board of Public Charities of the Commonwealth of Pennsylvania for the year ending September 30, 1891, shows that there were on that date 7649 insane in the various institutions throughout Pennsylvania. The State hospitals contained 5367; private hospitals, 620; almshouses, 1648; penitentiaries and jails, 14.

For some years the insane have increased faster than the accommodations of the State institutions, and as a consequence the five State hospitals for the insane contain in the aggregate 1000 more patients than they can comfortably accommodate. Notwithstanding this fact they exhibit, in their statistical reports, results as good as those noted in previous years.

Through advance reports received from the Superintendent of Census, the Committee announces that whereas in 1880 there was one insane person to every 615 persons in the State, in 1890 there was one to every 620—thus showing a slight decrease of insanity. This announcement of the Committee, based upon the best obtainable data, is as gratifying as it is reassuring.

The Legislature passed a bill which the Governor approved June 22, 1891, appropriating half a million dollars for the purchase of 500 acres of land and the erection thereon of suitable buildings for an institution to be known as the State Asylum for the Chronic Insane of Pennsylvania. Patients will not be admitted directly to this asylum, but will be sent to it from other State institutions when they shall have become chronic cases. The site chosen by the special commission is situated eight miles west of Reading, a point nearly equally distant from the State hospitals at Norristown, Danville, and Harrisburg. This institution is to be a place of refuge, an asylum in which humane and intelligent care will be given the large number of chronic insane who are no longer amenable to strictly medical treatment. Opportunities for all kinds of labor will be assured, so that large numbers will be daily employed. It is believed that the cost of maintenance can be kept within the limit prescribed by law—$2.50 a week per capita—by curtailment of certain expenditures deemed unnecessary for chronic insane patients and by freely utilizing the labor of the inmates. With large numbers of the chronic insane removed from the State hospitals, the Committee hopes to make these institutions hospitals in fact as well as in name. As there are nearly 2000 insane in the State, city, and county asylums of Western Pennsylvania, the site chosen for the new asylum (which is to draw patients from the entire State) seems to be somewhat unjust to the residents of the western part of the State. It is not unlikely, however, that at some future time this will be mended by the erection west of the Allegheny Mountains of a second asylum for the chronic insane.

There are 233 insane criminals and criminal insane distributed in four of the State hospitals. The impolicy of compelling the innocent insane to associate with the criminal insane is evident to the thoughtful; yet the Legislature has refused to provide a separate institution for these classes, although frequently urged by the Committee to do so.

In its report, the Lunacy Committee makes no mention of separate provision for epileptics, but we understand that they have recently considered the matter. Their report shows that there are 527 epileptics in the institutions. The famous epileptic colony at Bielefeld, in Germany, which has been in successful operation for nearly thirty years, during which time it has grown from a handful of patients to a village of 1200, has long illustrated the value

of separate care for epileptics. We say village, for a village it is, being made up of a large number of small buildings almost totally devoid of "institutional" appearance, the inhabitants as nearly as possible living an ordinary village life. The various grades of patients are carefully and extensively classified. The village contains a church, a school, stores, and numerous workshops. The most varied kind of employment is afforded, and the special capacity of each patient is considered. A number of similar institutions are in operation throughout Germany and other parts of Europe. About a year ago the erection of the first institution for the separate care of epileptics in this country was begun at Gallipolis, Ohio. Last spring the New York Legislature passed a bill providing for the establishment of a colony in that State capable of accommodating 600 epileptics.

The Committee omits discussion of the question of the separate care of another exceedingly troublesome class, viz., inebriates. An English alienist has remarked that it is a great injustice to the decent insane to compel them to associate with inebriates; on the other hand, the alcoholic, committed as insane, complains much of his enforced association with the insane. In Connecticut a special law governing inebriates appears to work well.

The Committee strongly favors the early hospital-treatment of insanity, and deplores the fact that often patients are not sent to hospitals until they become dangerous. There is much force in this. Yet it must be conceded that there are many cases of insanity that could be treated better outside of than in an asylum if physicians generally were better acquainted with insanity. As it is, not a few cases of puerperal mania, simple melancholia, and other mild forms of insanity are successfully treated outside of asylums by skilled physicians.

We must take issue with the Committee when it dissents from DR. CHAPIN'S view that the "practice of hospitals for the insane might assimilate nearer to that of general hospitals for the sick and injured in the reception of patients." Certainly there is a striking difference between insanity and ordinary physical diseases. The insane man often resists treatment, while he who suffers from physical disease gladly welcomes it. But, after all, the difference between the general hospital and the hospital for the insane ought to be minimized instead of being made greater. Pennsylvania law permits an insane person to be committed and recommitted to an asylum for a period of seven days. In this way the formality of the usual legal commitment is escaped. It was thought that this law would promote early treatment of insanity. But few persons have availed themselves of it, largely, we think, because little has been done to acquaint friends of patients of its existence. In Massachusetts a similar but better law has resulted in much good. We should be glad to see the experiment tried of permitting a few general hospitals to receive recent cases of insanity in properly equipped wards. We believe that this would promote early treatment of insanity and would spare many persons what to them seems a family disgrace—the commitment of a relative to an insane asylum. It would foster the idea, both among the profession and the laity, that insanity is a sickness as truly as is pneumonia or dysentery.

The hospitals for the insane of this State have contributed too little to the scientific side of psychiatry. In large part this is due to the insufficient number of medical officers in these institutions and the great amount of routine and clerical work that they are compelled to perform. But during the past few years a gratifying increase in contributions to the medical press is to be noted. We should be glad to see superintendents relieved of all business management of hospitals; an increase in the number and in the pay of assistant physicians; the appointment of pathologists in hospitals that do not now employ them. New York's plan of appointing assistant physicians from candidates who have passed a successful examination before a central board commends itself to us.

The Committee has done noble work in the past in causing to be transferred to the State hospitals insane persons who were improperly cared for in their own homes or in almshouses. Few counties now maintain their own insane, and in these the character of the care and medical attendance has vastly improved in character.

Probably Pennsylvania will, sooner or later, have a lunacy board similar to that of New York, which consists of a small number of well-salaried men who devote all of their time to the work. In favoring this change we wish to be understood as casting no unkind reflections upon the present Committee or upon any of the distinguished gentlemen who comprise it. But the State can hardly expect these gentlemen of large affairs to give without compensation

the amount of personal attention to the work that would be most desirable. The importance of thorough supervision of the insane in the State by such a central board can scarcely be over-estimated.

BIOLOGIC THERAPEUTICS.

MEDICINE has entered upon a new era in therapeutics, which may appropriately be designated biologic. The scientific world greeted with cordial admiration the synthetic products of the chemist's skill, but we stand to-day on the threshold of developments the magnitude of which is beyond comprehension. Since the birth of the young science of bacteriology practical minds have assumed an expectant attitude. Skepticism has largely given way to confidence, and excessive enthusiasm to a calmer judgment. It soon became apparent, in a manner and to a degree in which it had never been before, that many diseases carried with them the elements of their own cure. Of course, it had been recognized that certain diseases are self-limited, and the phenomena of natural and acquired immunity were duly appreciated; but it required the knowledge gained by the advances in bacteriology to afford a rational explanation of these various phenomena. There is yet much to learn. The beginning has but been made. Enough, however, has been seen to teach that disease has its chemistry, and that the treatment of the future will depend upon a knowledge of this fact and the application of chemic laws. It is not too much to hope that the treatment of the future will largely be specific, that is, in the employment of a definite remedy in the treatment of a given affection, just as mercury and iodine are to-day employed in the treatment of syphilis, quinine in the treatment of malarial disease, and salicylic acid in the treatment of rheumatism. The groundwork of this new system of therapy has been already laid by PASTEUR as to hydrophobia, by KOCH in regard to tuberculosis, by BEHRING, KITASATO, WASSERMAN, and EHRLICH as to diphtheria, by TIZZONI, CENTANNI, and CATTANI as to tetanus, by the KLEMPERERS as to pneumonia, by FERRAN, HAFFKINE, and KLEMPERER as to cholera.

STERN (*Deutsche medicin. Wochenschr.*, 1892, No. 37, p. 827) has made an interesting contribution to this subject. He had previously demonstrated that human blood-serum possesses the property of destroying the bacilli of typhoid fever. He now endeavored to determine if the bactericidal activity of the blood-serum to the bacillus of typhoid fever is increased in persons that had recovered from an attack of that disease; if the blood of such persons has any curative action upon animals inoculated with the bacilli of typhoid fever; and if this blood has the property of neutralizing the poisons generated by the bacilli of typhoid fever. Seven cases were examined, six at intervals of from five days to five and a half weeks after defervescence had set in, and one, who was under treatment for sciatica, seventeen and a half years after an attack of typhoid fever. It was found that the bactericidal activity of the blood-serum to the bacilli of typhoid fever was distinctly diminished in persons recently convalescent from typhoid fever, in comparison with the conditions present in persons that had never had typhoid fever. It was further found that, while the serum of a healthy person exerted no modifying influence upon the toxicity of bouillon-cultures of the bacilli of typhoid fever with which it was mixed, the serum of persons recently convalescent from typhoid fever exerted a distinctly modifying effect of an attenuating character. It was also demonstrated that a filtered extract of sterilized cultures of the bacilli of typhoid fever could be safely injected in doses otherwise lethal, if previously admixed with the blood-serum of persons recently convalescent from typhoid fever.

From the foregoing it is clear that the protective influence of the blood-serum of persons recently convalescent from typhoid fever is not dependent upon a destructive action upon the bacilli themselves. It will not do, however, at once to jump to the conclusion that the serum neutralizes the toxic products of the bacilli. It is also possible that the serum renders the animal organism less susceptible to the influence of the toxic products. This doubt would be removed if it were shown that the diminution in the toxicity of a mixture of the serum and the sterilized extract were progressive.

The observations here recorded are most interesting, and are deserving of thoughtful consideration. They should be repeated and extended. They seem to bring us nearer to a correct conception of natural immunity and natural cure.

THE ALBUMOSES AND TOXALBUMINS FORMED BY THE ANTHRAX-BACILLUS.

IN 1889 MR. E. HANKIN published in the *British Medical Journal* a method of obtaining from a cultivation of the anthrax-bacillus an albumose that, injected in the proportion of one one-millionth of

the weight of a mouse and of one ten-millionth of the weight of a rabbit, gave to the animal a protection that prevented it from being affected by the anthrax-bacillus when inoculated therewith. In the year following BRIEGER and FRAENKEL published a work on the toxic albuminoid products secreted by the pathogenic microbes; and these products, to which they gave the name "toxalbumins," were obtained in a manner similar to that employed by HANKIN.

SIDNEY MARTIN in 1890 published his experiments in obtaining from an alkaline albuminous cultivation of the anthrax-bacillus an albumose that could be separated into proto-albumose and deutero-albumose; and, though his methods of obtaining the albumose were different from those employed by HANKIN and BRIEGER, still the original albumose produced in the mice immunity to anthrax when injected in doses sufficiently large. The only chemical difference that he found between the albumoses produced by the anthrax-bacillus and those that are encountered in tryptic digestion is that the former possesses a well-marked alkaline reaction.

HANKIN has called attention to the fact that all of the published experiments agree that these toxalbumins should be regarded as albumoses. This latter term is rather vague, the substances comprised under that designation forming a series related on the one hand to peptones and on the other to globulins; still the toxalbumins resemble the most typical albumoses—those described by BRIEGER and FRAENKEL as slightly soluble recalling the hetero-albumoses and dysalbumoses of KÜHNE, those more soluble being comparable to the proto-albumose and deutero-albumose. HUNTER, in his experiments with KOCH's tuberculin, has isolated many different classes of albumoses that have different physiologic actions.

HANKIN divides albumoses into those that are slightly toxic, such as those formed during digestion, and those that are very toxic, such as the toxalbumins produced by bacteria. In the latter category we may include the toxalbumins that WEIR MITCHELL and REICHERT have found in serpent venom, and the toxalbumins of jequirity, ricini, and papaya. The question arises whether these toxalbumins are formed by the action of a diastase, such as pepsin, trypsin, etc., or whether they are formed more directly by the action of living protoplasm, without the intervention of a soluble diastase.

PETERMANN, in the *Annales de l'Institut Pasteur* for January, 1892, published a short protocol in reference to the experiments that he had made with the anthrax-toxalbumin described by HANKIN. He inoculated animals with this albumin in doses almost as large as those used by MARTIN, without producing any other effect than that of elevation of the temperature of from 1° to 2° C.; and the animal was quite as susceptible to inoculations of the anthrax-bacillus as an unprotected animal.

HANKIN and WESBROOK reviewed the former's work, and found that PETERMANN had made his cultivations of the anthrax-bacillus at too high a temperature; they state that the albumose derived from cultures made at a high temperature confers no more immunity than does an albumose made with the diastase secreted by the anthrax-bacillus, while the albumose produced at a lower temperature would produce immunity to anthrax in an inoculated animal.

They found that the anthrax-bacillus produced a proteolytic diastase that decomposed organized matter, in this decomposition forming an albumose. Such an albumose has no power to confer immunity. The bacillus also produces a toxalbumin directly, without the intervention of a diastase, that might be obtained in a state of relative purity, that is to say, without admixture with the digestive albumoses. In small doses this toxalbumin conferred on mice the power of resisting anthrax, which power sometimes went as far as complete immunity. In ordinary doses this toxalbumin produced no symptoms of poisoning in animals susceptible to anthrax; although in animals such as the rat, the frog, and the crawfish, that are ordinarily immune to anthrax, this albumose acts as an energetic toxine.

It will be seen that in these later conclusions HANKIN does not claim that his toxalbumin will confer absolute immunity, as he did in his first publication; but the results of all investigators show that the anthrax-bacillus elaborates in certain media a substance that confers a more or less protracted immunity to anthrax-inoculation, though further research is necessary to determine the various conditions essential for the production of that substance.

THE ALBUMINURIA ASSOCIATED WITH THE URIC-ACID DIATHESIS AND WITH OXALURIA.

AT a recent meeting of the Philadelphia Pathological Society, PROF. DA COSTA called attention to a most important subject, concerning which little

has hitherto been published. He pointed out that there is a group of cases exhibiting certain symptoms that might be held to be indicative of chronic nephritis, in which albumin and tube-casts appear in the urine, but in association with uric acid and urates, or with calcium oxalate, or with both. The specific gravity of the urine is invariably high; the quantity of albumin is variable, but usually small; the albuminuria is often intermittent; the tube-casts are not always found, and they are usually granular or hyaline, rarely epithelial, never oily. DR. DA COSTA'S observations extend over a number of years. In illustrative cases cited, in addition to other symptoms of lithemia, intestinal indigestion was marked, with flatulence, constipation, headache, and mental depression. Retinal changes were not present in any case. This fact and the high specific gravity of the urine were emphasized in differentiating the condition from interstitial nephritis, while the absence of dropsy throughout the clinical course of the affection and the invariably favorable prognosis—albumin and tube-casts disappearing under treatment—are additional discriminating features.

It should also not be forgotten that in cases of the uric-acid diathesis (or lithemia), in addition to the excess of uric acid and urates found in the urine, "phosphates and calcium oxalate are likewise frequently in excess; in cases attended with paroxysmal flushing red blood-corpuscles and albumin are occasionally found; sometimes a small number of tube-casts." The same conditions also exist in connection with obscure symptoms of so-called vasomotor ataxia.

The conclusion seems justifiable, that albuminuria is to be relegated to the position of a symptom that is to be interpreted only in connection with all other phenomena in a given case. PROF. DA COSTA expressed the opinion that so-called physiologic or cyclic albuminuria might fairly be considered as similar in the mechanism of its production to that form of albuminuria described by him, namely, as resulting from the irritation of the kidneys by the excessive amount of nitrogenous waste that they are called upon to excrete. As to the presence or absence of kidney-lesions, it was impossible to speak from post-mortem investigations, as, save in one case, the patients recovered; that case—a doubtful one—is still under observation. Nevertheless, if one may argue from clinical data—and we see no reason why this is not legitimate—the absence of permanent organic lesion seems to be proved. Most certainly the cases may be taken out of the category of "Bright's disease," and it is something gained to be able to assure a patient whose urine contains both albumin and casts that he has not "Bright's disease," and that he may recover.

That the organic nervous system is not uninfluenced by the disease is shown not only by the observations of vasomotor disturbance already cited, and by the depression that attends oxaluria, but also by the fact related both by PROF. DA COSTA and by one of the other speakers, that in some of these cases there is an afternoon elevation of temperature. This might be ascribed to the mechanical or chemic irritation produced by uric acid, but much more probably both the faulty metabolism, evidenced by the lithemia or oxaluria, and the nervous disturbances have their origin in the same cause. What that is we are not in a position to determine.

The treatment pursued consisted essentially in regulation of diet (milk and green vegetables being permitted, meats and highly nitrogenous foods diminished, and carbohydrates and fats interdicted), open-air exercise, and the administration of alkaline diuretics and laxatives, with an occasional mercurial.

Inhalations of oxygen were being tested.

THE PAN-AMERICAN MEDICAL CONGRESS.

THE appearance of the preliminary announcement of the first Pan-American Medical Congress, to be held in Washington next September, is at once a promise, a guarantee, and a call to action. Few have an adequate conception of the magnitude of this undertaking and of its significance to American medicine. It is very evident that it has now entirely passed the stage of doubt or indecision. The first thought that strikes one in glancing through the pamphlet of the preliminary announcement is as to the tremendous business and executive demands made upon the officers, and that so far have been splendidly met by the energetic Secretary-General, the President, and others. The officering of the long lists of the sections has been a work of the greatest difficulty and finest judgment, and one can only marvel at the excellence of the results.

But it is now time for all American physicians to respond to the invitation and the opportunity in a spirit of patriotism to our country and loyalty to our profession. It is not now a question of the success of the Congress, but as to whether we shall or shall not give that early and effective sympathy that constitutes each of us a helper and a part of

the success. The heavy expenses of organization, amounting to something like $5000, must be paid by the advance registration-fees. The Secretary-General is DR. CHARLES A. L. REED, Cincinnati, Ohio, who, upon request, will forward copies of the preliminary announcement. The Treasurer is DR. A. M. OWEN, Evansville, Ind., to whom should be remitted the registration-fee.

CORRESPONDENCE.

SUDDEN DEATH IN THE PUERPERIUM.

To the Editor of THE MEDICAL NEWS,

SIR: The subjoined report may prove interesting.

Mrs. C., a primipara, almost forty years old, was seen by me on November 4, 1891, at 11 P.M. She had been in labor, with moderate, irregular pains, for about six hours. She was small and spare, weighing about 100 pounds; quite anemic; of a nervous temperament; of a tuberculous family; and a sufferer with megrim, also inherited. Her wedlock was unfortunate, and her pregnant period an unhappy one.

The os uteri admitted the index finger only. The breech was presenting. Her pulse was 120, and the heart's action feeble. I gave her by the mouth morphine sulphate, gr. ¼, and atropine sulphate, gr. $\frac{1}{150}$, in a tablet, and waited for Nature's action. At 3 A.M. on the 5th I gave her another tablet, and again at 9 A.M. and at 2 P.M. The progress of the case being unsatisfactory, the friends were advised of the danger and of the necessity for assistance.

I was permitted to call Dr. Edward Pendleton to counsel and assist me. About 4 o'clock I administered chloroform, and Dr. Pendleton with his hand dilated the os, which was then about the size of a half-dollar, and drew down the feet. He then permitted the uterus to expel the child, but the head was retained, and the forceps was applied to extricate it. The child was still-born. The flow was moderate. The placenta was expelled in less than ten minutes, by the aid of the hand over the fundus. The woman was under chloroform for fifty minutes. I had with me the A. C. E. mixture and ether, but preferred the chloroform to begin with, because I was more accustomed to administer it, and we thought dilatation would be effected more speedily. I had been physician to the family with which she lived for many years, which gave her great confidence in me—much more, in fact, than I had in myself at the time. I saw her again five hours after delivery, when no untoward symptom was manifested, except that the pulse continued at 120.

On November 6th, twenty-four hours after delivery, I directed a teaspoonful of brandy to be given to her in a tablespoonful of water, after which I assisted her upon the commode, as she had failed to pass urine in the bed-pan and the attendant could not use the catheter, and I could not see her every eight hours. Directions were given not to allow her to get up without first taking a teaspoonful of brandy.

7th. Pulse, 112; temperature, 99.8°.

8th. Pulse, 112; temperature, 100°.

9th. Pulse, 108; temperature, 99.8°.

10th. Pulse, 108; temperature, 99°. I now removed two stitches that I had introduced in the perineum, with a favorable result.

11th. Pulse, 90; temperature, 99°.

13th. Pulse, 96; temperature, 98°. The woman complained of headache, until her bowels were moved by the action of a mild aperient tablet given on the previous evening. She felt some discomfort after taking food.

15th. Pulse, 88; temperature not taken. The bowels were again opened by the aid of a tablet given on the previous evening.

16th. The patient was given permission to sit up for twenty minutes, but she did not, because her head ached.

17th. Pulse, 96; temperature, 99.8°.

18th. The woman sat up for twenty-five minutes. At about 3.30 A.M. she felt an inclination to evacuate the bowels, and was helped upon the commode by an attendant, who had not been informed of my instructions to give brandy, and who, consequently, did not give it. The attendant stepped into an adjoining room to close a stove-door, and, on returning, found the patient on the bed, on which she had fallen or thrown herself. There was a momentary shaking or convulsive movement of the whole body, with pallor of the countenance, and death occurred within five minutes of the time at which she was assisted to the commode. Presumably, death took place by syncope or heart-failure. An autopsy was not allowed.

The points of interest to me were the proof, by death, of a dangerously weak heart, and the possibility of tolerating chloroform when aided by the use of morphine and atropine.

Furthermore, I believe that the confidence of the patient lessened the mental shock, which, to my mind, often contributes to the cause of death by anesthetics.

Respectfully,

N. W. LEIGHTON, M.D.

143 TAYLOR STREET, BROOKLYN, N. Y.

MORPHINE-POISONING.

To the Editor of THE MEDICAL NEWS,

SIR: On Monday morning, October 24th, at 1 A.M., Mr. S., a drygoods clerk, twenty-four years old, took ten grains of morphine sulphate, and held a revolver to the head of his room-mate, forbidding him to give any alarm. After a period of ninety minutes the drug had produced profound stupor; then the room-mate made his escape and notified a brother of the poisoned man. A physician was sent for and the stomach was washed out with a solution of tannic acid. Atropine, in doses of gr. $\frac{1}{40}$, was administered hypodermatically every half-hour until the pupils were dilated. One pole of a galvanic current was applied to the spine, the other to the nape of the neck. Walking the patient and beating with twigs were freely practised, but the treatment seemed of no avail. It was now eight hours after the dose was taken. The respirations were reduced to 7 per minute, the pulse increased to 135 per minute. The case appeared hopeless. The pupils were irregular; great cyanosis was present. In this extremity I administered one pound of coffee in

warm infusion *per rectum*. The patient woke up immediately. The enemata of strong coffee were kept up for twenty-four hours. The patient progressed rapidly to recovery. In all, three pounds of coffee were used. In my opinion the coffee treatment saved the life.

J. H. MCCASEY, M.D.

CONCORDIA, KANSAS.

REVIEWS.

TEXT-BOOK OF OPHTHALMOLOGY. By ERNEST FUCHS, M.D. Translated by A. DUANE, M.D. New York: D. Appleton & Co., 1892.

THE multiplication of text-books of ophthalmology seems to be endless, and excellent as in many respects it is, the present book was, in a medical sense, hardly demanded by the American practitioner. The ideal epitomization of this specialty is undoubtedly yet to come, though the author that shall be bold enough to undertake the task must be exceptionally well fitted for it, and should consider it long and well. With every new book the critic will ask more sharply whether the combined need of author and publisher, or that of science, is responsible for the work.

In his function of translator and editor, Dr. Duane has merited much praise. There is everywhere evident a conscientiousness and discrimination worthy of imitation by many who without capacity, either linguistic or scientific, have sought to be the introducers to us of the products of Continental scholarship. It is also needless to say that the publishers have done their part with equally commendable care and taste.

Yet another thing, the index, elicits our gratitude. It is such a help, a good index, and it is so rarely seen! If authors, instead of shoving this tedious work upon students or upon literary hacks, would see to it themselves, making it full, intelligent, and designed to help the reader—as this one is—they would find it good policy.

But it is the muscle and not the clothing that does the work! Does the matter of this book satisfy the English and the American ophthalmologist, or does it correspond with the need of the student? In diseases of the eye, very fairly; in operations, scarcely; in refraction, absolutely not.

It is proof of the quick march of progress in this special branch that many things of prime importance have come up since Dr. Fuchs wrote his treatise. For this, no blame can be given except that American work takes a long time to penetrate Germany, and a longer time to return to us in the shape of systematization and translation. The American must write the useful book for the American! For example, in the treatment of trachoma we look in vain for any mention of the rolling-process of Knapp, and wonder at the fact that only the ancient silver nitrate and copper sulphate methods of treatment are mentioned.

Want of space, however, compels us to omit many points marked, both for commendation and criticism, and proceed to quote some wonderful sentences in reference to refraction that show the pernicious influence that this book might have if they were not to every student of the eye luminous and ludicrous with error:

"In practice we generally abstain from determining the total hypermetropia, because atropinization is accompanied by effects which are disagreeable to the patient and which last several days."

"Full correction of the total hypermetropia is indicated only in those cases in which we have to combat a strabismus convergens which is beginning to develop."

"We correct the hypermetropia only as far as is required to relieve the asthenopia."

"The determination of astigmatism must be undertaken whenever in making our tests perfect vision cannot be attained with spherical glasses" [without paralysis of the accommodation, always].

"It is unnecessary to correct every case of astigmatism; this is done only when the patient wishes to see more distinctly or when he has asthenopic troubles."

"Regular corneal astigmatism can be determined by . . . . the ophthalmometer."

"In anisometropia we give the same glasses for both eyes, or correct only one eye and place a plane glass before the other."

MATERIA MEDICA AND THERAPEUTICS. A Manual for Students and Practitioners. By L. F. WARNER, M.D., Attending Physician to St. Bartholomew's Dispensary, New York. Edited by BERN. B. GALLAUDET, M.D., Demonstrator of Anatomy, College of Physicians and Surgeons, New York. (STUDENTS' QUIZ SERIES.) Philadelphia: Lea Brothers & Co., 1892.

HOWEVER much teachers may decry the use of compends on the various branches of medicine, there is nevertheless a demand for such works on the part of the student. They are doubtless the outgrowth of a system of education that ought to pass away, but the short time devoted to medical education, and the enormous mass of material, as represented by the large text-books, to be studied, make the use of compends of any given subject temporarily, at least, not only desirable, but necessary.

This volume is the fifth of "The Students' Quiz Series" issued by Lea Brothers & Co. It is arranged in the form of questions and answers. While the author states that the compend is based upon the works of Brunton, Wood, Bartholow, and others, as well as upon notes of Prof. Peabody's Lectures, it is very evident that the arrangement of the topics and the classifications adopted are those of Prof. Wood—a merit, it may be said, which ought to enhance its value. A work of this kind intneded for students must necessarily contain only the well-known and best-established facts pertaining to the subject. The author states in the preface that it has been his aim to "state concisely and completely the bare essentials as far as it is possible to glean them from a mass of more or less conflicting authority." An examination of the answers justifies the opinion that he has succeeded quite well. They are complete, and for the most part accurate. The statement, however, that alcohol should be given in chloroform narcosis should be corrected, as it has been shown by modern experiments, especially by the able researches of Wood, that alcohol under such circumstances acts as a cardiac depressant. The recommendation of amyl nitrite in puerperal convulsions is of doubtful value, as it might lead to dangerous hemorrhage from relaxation of the blood-vessels. The usefulness of potassium permanganate as an antidote in cases of phosphorus-poisoning is not referred

to. Errors of this character, however, may depend upon conflicting authorities. The book has many of the merits as well as many of the faults of all works of this character.

PRACTICE OF MEDICINE. By EDWIN T. DOUBLEDAY, M.D., Member of the New York Pathological Society, and J. D. NAGEL, M.D., Member of the New York County Medical Association. (STUDENTS' QUIZ SERIES.) Philadelphia: Lea Brothers & Co., 1892.

THIS little book is not devoid of some sins of omission and of commission that detract somewhat from its value. For example: On page 19 the expression "Fever is from 102°–104° F." is used. The word *temperature*, instead of *fever*, would be more fitting. Among the common sequelæ of scarlatina no mention of arthritis is made. The question "What is vaccination?" is answered "Inoculation with humanized vaccine virus." The great majority of vaccinations have been and still are made with bovine virus, and the foregoing answer, thus unqualified, is not correct. It has been rather definitely settled that true diphtheria is caused by the Klebs-Loeffler bacillus, and yet no mention of this fact is made in the summary of the etiology of diphtheria. In other diseases, the causes of which are not more certain, the authors mention the respective specific microörganisms. No notice is given of the ameba coli in the etiology of dysentery. The causative agent of the malarial fevers is given as "apparently a micrococcus." We did not know the plasmodium malariæ had fallen from its position. Dilatation of the stomach and the great subject of gastric neuroses were better left untouched in such brief epitomes.

Praise, however, is due for the very good epitome of the different forms of paralysis and spasm, and other parts of the section upon nervous diseases are commendable. The book is "one of the best of its kind."

THE SURGICAL TREATMENT OF NEURALGIA OF THE FIFTH NERVE (TIC DOULOUREUX). By WILLIAM ROSE, M.B., B.S. Lond., F.R.C.S., Joint Professor of Surgery in King's College, London, and Surgeon to King's College Hospital, etc. 8vo, pp. 88, with 19 illustrations. London: Baillière, Tyndall & Cox, 1892.

THIS monograph consists of the reprinted Lettsomian Lectures for 1892, and will rank in scientific and practical value with the very best contributions upon trigeminal neuralgia.

The writer reviews at length the etiology and pathology of the affection, and, while non-committal, yet appears to lean toward the theory of vascular derangement as the principal causative factor. All methods of surgical interference are described in a very lucid and direct manner, while that of removal of the Gasserian ganglion as performed by the writer, who has gained considerable reputation in this field, is treated with elaboration. He has removed the ganglion six times within four years, with four apparent cures, one death, one relapse, the loss of one eye and threatened destruction of two others, and one case of resultant ankylosis of the jaw. It is admitted that this operation is difficult and not without considerable danger, yet when we consider the deplorable condition of these cases, the percentage of recoveries, if maintained, must be considered a sufficient justification.

CHARACTERISTICS. By S. WEIR MITCHELL, M.D., L.L.D. (Harvard). New York: The Century Co., 1892.

THE MEDICAL NEWS regrets that it cannot give space to a proper review of Dr. Mitchell's most interesting series of conversational character-studies—for "Characteristics" can hardly be called a novel. The book is peculiarly full of interest for medical men, for the hero, Owen North, is a physician, and there is incidental discussion of many of the problems, psychic and physical, that most attract and perplex the medical observer. The characters are drawn, or rather are made to unfold themselves, with Dr. Mitchell's usual clearness and insight into human nature, and with a strength and breadth very different from that of the undecided consultant who "lifts into prominence for himself all the minor symptoms." The book is not one to be read "straight through," but to be taken up now and again for a delightful half-hour.

NEWS ITEMS.

Dr. A. Reeves Jackson, of Chicago, died November 12th, of cerebral hemorrhage.

Dr. Enoch Fithian, of Greenwich, N. J., died November 15, 1892, in his 101st year. He was graduated from the University of Pennsylvania in 1816.

Eleventh International Medical Congress.—In addition to the names already announced (THE MEDICAL NEWS, October 15, p. 448) the following are included in the membership of the American Sub-committee of the Eleventh International Medical Congress, to be held at Rome from September 24 to October 1, 1893: W. T. Briggs, Nashville, Tenn.; H. P. Bowditch, Boston, Mass.; C. Cushing, San Francisco, Cal.; Norman W. Kingsley, D.D.S., New York; D. B. St. John Roosa, New York. The French Railway Company has offered to the members of the Congress a reduction of 50 per cent. on its fare.

BOOKS AND PAMPHLETS RECEIVED.

Bulletin of the Association of American Medical Colleges. St. Paul, Minn., 1892.

Handbuch der Physiologischen Optik. Von H. von Helmholtz. Zweite umgearbeitete Auflage. Siebente Lieferung. Hamburg und Leipzig: Leopold Voss, 1892.

The Ontario Medical Register for 1892.

Announcement of the College of Physicians and Surgeons of Ontario for the Academic Year, June, 1892–93.

A Successful Case of Cholecystotomy for the Removal of Gallstones Obstructing the Cystic Duct. By William Easterly Ashton, M.D. Reprint, 1892.

The Pathology of Intestinal Obstruction Following Abdominal and Pelvic Operations. By William Easterly Ashton, M.D. Reprint, 1892.

Report of the Committee on Cow's Milk to the Medical Society of New Jersey. By Henry L. Coit, M.D., Chairman. Pamphlet, 1892.

Supra-pubic Cystotomy for Chronic Cystitis and Cystic Hemorrhage. A Report. By James B. Kinnaird, M.D. Reprint, 1892.

Experimental Research on the Implantation of the Ureters into the Rectum. By Harvey Reed, M.D. Reprint, 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, NOVEMBER 26, 1892. NO. 22.

ORIGINAL ARTICLES.

A FURTHER REPORT IN REGARD TO THE TREATMENT OF ENTERIC OR TYPHOID FEVER BY MEANS OF SYSTEMATIC COLD BATHING, IN THE GERMAN HOSPITAL, PHILADELPHIA.

BY J. C. WILSON, M.D,

PHYSICIAN TO THE HOSPITAL AND PROFESSOR OF THE PRACTICE OF MEDICINE IN THE JEFFERSON MEDICAL COLLEGE.

THE treatment of enteric fever by systematic cold bathing, according to the method of Brand, has now been practised in the German Hospital since the first of February, 1890. It is the only treatment employed, and all patients suffering from this disease are submitted to it, except very rare cases brought into the hospital moribund, or those that are brought in late in the course of the attack—*i. e.*, during or after the third week.

I have already published some accounts of the treatment as practised in the hospital, and its results. These publications[1] cover the work to June 1, 1891, and contain the results of the analysis of three series of cases, as follows:

1. February 1 to July 15, 1890, under my service, 40 cases, no deaths; average number of days in hospital, 36.2.

2. July 15, 1890, to February 1, 1891, services of Dr. Trau and Dr. Wolff, 54 cases, 1 death; average number of days in the hospital, 38.2.

3. February 1 to June 1, 1891, under my service, 66 cases, 7 deaths; average number of days in hospital of the non-fatal cases, 26.

Total in 16 months, 160; total deaths, 8, or 5 per cent.

In the above series of cases relapses occurred eleven times, multiple relapses once. The average number of baths in the cases of the first series was 42; the smallest 10; the largest, 138.

The medical service during the year is divided into three periods of four months each. As the treatment is a matter of routine, and systematically carried out in each of the services, the cases may hereafter be reported in annual series.

The following table, compiled from the records of the hospital by Dr. Woodward, late resident physician, shows the statistics for the year, June 1, 1891, to June 1, 1892:

[1] THE MEDICAL NEWS, December 6, 1890, p. 588. International Clinics, July, 1891.

CASES OF ENTERIC FEVER TREATED BY SYSTEMATIC COLD BATHING.

Series No. 4. June 1, 1891, to June 1, 1892.

No.	Admission.	Sex.	Age.	Day of disease	Max. temp.	1st day norm. temp.	Days in house.	Number of baths.
	1891.							
1	June 7	F.	22	7	105.4	21	36	43
2	" 8	M.	22	10	105.2	28	36	80
3	" 12	F.	20	7	104.6	20	41	29[1]
4	" 25	M.	18	8	107.6	32	49	103
5	" 27	M.	27	8	105.0	31	38	65
6	" 28	F.	24	11	103.6	17	27	17
7	" 28	F.	18	6	104.8	25	23	48
8	July 6	M.	24	7	106 0	27	35	27
9	" 9	M.	28	3	102.4	10	18	2
10	" 22	M.	31	7	104.0	18	29	28
11	" 22	M.	18	7	104.4	18	26	31
12	" 28	M.	25	8	104.4	30	38	57
13	" 29	M.	40	4	103.6	34	47	41[2]
14	Aug 4	M.	28	5	105.4	45	69	34[3]
15	" 5	F.	20	9	104.0	29	41	41[4]
16	" 7	M.	18	8	104.8	31	33	86
17	" 8	M.	29	7	104.0	26	33	29
18	" 18	M.	30	10	103.6	18	35	11
19	" 20	F.	28	3	104.4	23	37	31
20	" 27	M.	25	6	104.4	18	27	40
21	Sept. 4	F.	42	7	103.6	32	42	13
22	" 14	M.	19	...	108.0	...	41	54
23	" 14	F.	32	...	103.4	...	20	15
24	" 19	F.	42	...	102.2	...	15	1
25	" 21	F.	26	...	103.4	...	24	20
26	" 22	F.	18	...	104.8	...	27	39
27	" 22	F.	32	...	104.2	...	26	8
28	" 22	F.	26	...	103.6	...	16	9
29	" 27	F.	21	...	105.8	...	53	33
30	" 28	F.	24	...	102.6	...	19	5
31	Oct. 6	M.	17	...	102.4	...	48	5[5]
32	" 13	M.	29	...	105.4	...	42	73
33	" 19	F.	22	...	105.0	...	70	92
34	Nov. 4	M.	22	...	103.0	...	45	17
35	" 7	M.	22	...	104.0	...	14	4
36	" 9	M.	27	...	103.0	...	35	14
37	" 13	M.	26	...	103.8	...	22	15
38	" 14	M.	24	...	104.6	...	30	54
39	" 18	F.	18	...	105.8	...	61	121[6]
40	Dec. 13	M.	22	...	103.2	...	37	5
41	" 17	M.	35	...	104.2	...	52	62[7]
42	Jan. 5	M.	18	...	104.4	...	28	32
43	" 6	M.	31	...	103.6	...	26	39
44	" 16	M.	20	...	103.8	...	32	34
45	" 17	M.	19	...	104.6	...	6	34[8]
46	" 17	F.	14	6	106.6	33	66	138
47	" 20	M.	22	5	105.2	24	31	80
48	" 23	M.	18	7	105.0	15	23	38
49	" 24	F.	26	10	108.4	...	11	50[9]
50	" 31	M.	13	3	104.0	...	15	75[10]
51	" 26	F.	27	1	102.8	13	21	8
52	Feb. 1	M.	19	7	105 0	48	26	37
53	" 1	M.	25	5	104.6	31	48	106[11]

[1] One relapse.
[2] One relapse.
[3] Two relapses.
[4] One relapse.
[5] (Insane before admission.) Developed insanity.
[6] One relapse.
[7] Relapse after ten days of normal temperature.
[8] Death—croupous pneumonia.
[9] Death. Pronounced nervous symptoms from outset.
[10] Death from cerebral meningitis.
[11] Intestinal hemorrhage.

No.	Admission.	Sex.	Age.	Day of disease	Max. temp	1st day norm. temp.	Days in house.	Number of baths.
54	" 1	F.	16	10	104.6	20	29	23
55	" 6	F.	18	5	103.4	24	32	35
56	" 8	M.	26	2	103.0	13	21	25
57	" 18	M.	27	9	105 2	34	41	47[1]
58	" 19	F.	29	11	103.6	30	38	43
59	" 20	F.	22	5	105 4	15	17	41
60	" 28	M.	24	8	106.0	...	16	76[2]
61	Mar. 21	F.	28	9	105.2	26	29	33
62	April 5	F.	22	6	104 4	15	23	8
63	" 7	M.	26	4	103.4	24	31	11
64	" 12	M.	14	7	103.4	20	24	11
65	" 10	M.	29	7	104.8	48	65	149[3]
66	May 7	M.	26	7	105 0	28	45	105

Total, 66 cases. Deaths, 4. Mortality, 6 per cent.

The fatal cases were as follows:

No. 45.—H. S., male, nineteen years of age, a barber, died six days after admission, of double pneumonia.

No. 49.—A. S., female, twenty-six years of age, was admitted on the tenth day of the disease. From the outset the temperature ran very high. The nervous system was greatly affected, culminating in delirium five days before death. She lived eleven days in the hospital. One half hour after death the thermometer registered 109.8°.

No. 50.—L. H., male, thirteen years old, was admitted on the third day of the disease. He died on the fifteenth day, with symptoms of cerebral meningitis.

No. 60.—O. C., male, twenty-four years old, was admitted on the eighth day of the disease. He developed pneumonia on the seventeenth day; intestinal hemorrhage on the nineteenth day, twentieth day, twenty-second day; and died on the twenty-third day.

The foregoing table shows the main facts in regard to this series of cases.

The patients were chiefly adolescents and young adults, their ages ranging from thirteen to forty-two years, as follows:

Under 15 years	3 cases.
From 15 to 20 years	14 "
" 20 " 25 "	18 "
" 25 " 30 "	22 "
" 30 " 35 "	5 "
" 35 " 40 "	1 case.
" 40 " 42 "	3 cases.

Relapses occurred in 8 cases, 12 per cent., in 1 of which a second relapse took place.

The average number of baths administered was about 44; the smallest, 1; the largest, 149. In 2 cases 5 baths only were given; in 1 case, 4 baths; in 1, 2 baths; and in 1, 1 only. These were either abortive cases or cases admitted late in the course of the disease, in which the axillary temperature after the last bath never rose to 101.5°.

The average number of days in the hospital of the non-fatal cases was about 35.

[1] One relapse; intestinal hemorrhage.

[2] Death—pneumonia and intestinal hemorrhage. [3] One relapse.

The total number of cases treated by this method to June 1, 1892, is 226; the total deaths, 12—5.3 per cent. In the entire series of 226 cases relapses occurred in 19 instances; more than 1 relapse occurred in 2 cases.

The statistics of the German Hospital now rest on a sufficient number of cases and extend over time enough to warrant conclusions as to the efficiency of the treatment in an American hospital. It has reduced the death-rate in this institution nearly 50 per cent. from the best showing of previous years, and 66 per cent. from the most favorable statistics of the hospitals of the city under other methods.

It is our custom at the German Hospital to administer to the patient upon admission, if before the 10th day, a laxative dose of calomel, from gr. vijss-x, and in cases entering the hospital during the first week this dose is very often repeated; otherwise, the management of the cases in almost all instances conforms strictly to the method of Brand. The necessity to depart from the routine plan in any particular has scarcely ever arisen in my service. In the services of Dr. Trau and Dr. Wolff it has been infrequent, but not to the same extent.

When patients are admitted after the disease has made some progress, at the end of the first or during the second week, pending the influence of the baths in controlling some of the more important symptoms, an influence which does not show itself until a number of baths have been administered, it has been thought necessary occasionally to administer strychnine as a cardiac stimulant; and to control a troublesome diarrhea not moderating after the action of the calomel, by an occasional opium-suppository. The maxim of universal application, that the patient, and not the disease, is to be treated, is constantly observed.

The details of the method of Brand are fortunately becoming well understood, but as these may not be familiar to some, I reprint the following from THE MEDICAL NEWS, of December 6, 1890:[1]

The method of Brand consists in the following systematic procedure:

Whenever the temperature taken in the rectum reaches 102.2° F. (39° C.) the patient is placed in a bath of 65° F. A compress, wet with water about five degrees lower, is placed upon the head, or water at a lower temperature is poured upon the head and shoulders. The patient remains in the bath fifteen minutes, during which time he is systematically rubbed by the attendants and encouraged to rub himself. At the expiration of that time he is removed from the bath, and wrapped in a coarse linen sheet, over which a blanket is folded, the extremities being thoroughly dried and rubbed. A little wine or spirits is then given. This is repeated every three hours, unless the temperature remains below 102.2° F. The alimentation is liquid, nutritious, and carefully regulated. No drugs are administered.

[1] "The Treatment of Enteric Fever, with Special Reference to the Method of Brand. An Address before the Lycoming County Medical Society, delivered at Williamsport, Pa., Nov. 4, 1890."

Glénard[1] gives the following outline of the technique:

"If the diagnosis of typhoid fever is probable, recourse should be had to the baths, whatever may be the symptoms. The full tub should be placed in the ward or chamber, parallel to the bed at a distance of one or two meters, the floors properly protected by oilcloth, and a screen placed between the bed and the bath-tub. A sufficient quantity of water should be used to cover the patient's body to the neck. It should be of a temperature of from 64.4° to 68° F. (18° to 20° C.). The baths should be prepared without disturbance or noise. There should be placed on the floor near the head of the tub two pitchers of cold water of a temperature of from 46.4° to 50° F. (8° to 10° C.), each containing four or five quarts (liters). A glass of water should be at hand. The first bath should be given preferably about four o'clock in the afternoon, unless there is some urgent reason for selecting a different hour, and the physician should be present. The rectal temperature is taken, the urine is voided, and the patient is assisted into the full tub, the screen having been removed. If there is perspiration the patient is dried before entering the bath. Cold water from the pitchers is poured upon the head and the back of the neck, for one or two minutes, the amount being from two to three quarts (liters). Then a swallow of cold water or red wine is given. This being done, the whole surface of the body is briskly rubbed with a sponge or brush, and the patient is made to rub his abdomen and chest. These frictions stimulate the peripheral circulation, prevent the accumulation of heat at any one point, moderate the sensation of cold, and help to pass the time; they are not indispensable. Shivering appears, as a general rule, in between eight and twelve minutes; this is a necessary evil to which too much attention is not to be paid. Toward the middle of the bath, or at its termination, cold water is again poured over the head and neck. The time occupied ought to be at least fifteen minutes, longer if the head is still warm and the cheeks red, or if the temperature of the patient was very high before the bath.

"The patient should leave the bath without precipitation. He cannot take cold; thoracic complications are caused by typhoid fever and not by chilling. The air of the apartment should be pure and not too warm; the window should be opened in the intervals between the baths; during the bath it ought to be closed. On leaving the bath, the patient should be gently dried with a towel. The bed should be carefully made during each bath. If on returning to the bed shivering takes place, the limbs should be rubbed and a hot bottle placed at the patient's feet. A cold compress, covered with oil-silk or flannel, should be placed over the abdomen, and a little warm nourishment administered.

"Three-quarters of an hour after the bath the rectal temperature should again be taken. If, however, it is found to be below 101° F. (38.5° C.), it is not necessary to take it again for three hours.

"Alimentation should consist of the following articles: Milk diluted with coffee or tea or cocoa (a quarter of a liter at each administration); thoroughly cooked gruel, oatmeal, tapioca, or vermicelli; veal, mutton, or chicken broth, freed from fat when cold, and reheated at the moment of administration. As a drink, pure cold water should be given; the indication for wine or spirits is urgent only in cases that are subjected to this treatment late in their course. If the patient does not sleep, or sleeps badly, he is to have a draught of iced water, and the abdominal compress is to be changed every quarter of an hour. The discharges from the bowels are to be preserved for inspection, and the total quantity of urine may be collected in the same vessel. Neither age, sex, menstruation, pregnancy, nor sweating (except that which occurs at the end of defervescence) in any way modifies the treatment. In women who are weaning their children, cold compresses should be applied to the breasts and be frequently renewed. If diarrhea persists, it is to be combated by cold compresses, which may be kept cold by the aid of a bladder of ice. If there is constipation, it is to be treated by cold enemata, and, if these fail, by enemata consisting of one part of cold water and one part of fresh ox-gall.

"When the temperature before the bath is very high, or if the fall forty-five minutes after the bath is less than 1.8° F. (1° C.), the bath must be prolonged to eighteen or twenty minutes. It is very rarely necessary to modify the general formula. After the temperature does not exceed 109 2° F. (39° C.), but yet reaches 101.3° F. (38.5° C.), it is necessary to treat these slight exacerbations by baths of 68° F. (20° C.), and of five minutes' duration, in order to prevent the prolongation of the fever or the occurrence of relapse, and to shorten convalescence. If relapse occurs, it must be treated according to the general formula. When the temperature no longer exceeds 101.3° F. (38.5° C.), defervescence being established, the baths are discontinued, and the patient should be treated as convalescent, but is to be kept in bed until the temperature has not exceeded 100.4° F. (38° C.) for four days. He may then rise and in a short time walk in the open air; he may prolong his promenades according to his strength, and one will be struck by the rapidity with which his strength increases after every outing. Proper precautions are to be taken against cold. As to alimentation, already during defervescence there may be added to his soup, milk, or bouillon, either one or two raw eggs daily, or, a little later, one or two teaspoonfuls of scraped raw meat or a little toasted bread or biscuit; but the aliment must always be given in liquid form.

"The *régime* of the convalescence should be gradually established, and may consist of solid food after the temperature has not risen above 100.4° F. (38° C.) for four days.[1] At this period the intervals between the feedings should be at first three hours during the day; afterward one regular meal daily may be given; and a little later the patient may have roast beef and fish, morning and evening, and bread in small quantities. The appetite is excellent, and it is necessary to control it. For the first two days of the convalescence the temperature is to be taken as before; after that, for a week, morning and evening. At the end of that time temperature observations may be discontinued.

"During the treatment by baths, one attendant is required for the day and one for the night; these duties may be fulfilled by members of the family. In a hospital one bath-tub may be used for a dozen patients, but it is better to use one for six patients. Two attendants are sufficient for twelve patients. It is not necessary to renew the water of the bath every three hours; once in twenty-four hours is sufficient. The patient treated from the beginning in this manner never suffers from fecal incontinence. As a rule, the patient should pass his water before entering the bath. During epidemics the water of the bath, if it is not soiled, should serve for several patients, and should only be renewed two or three times a day."

This is the line of treatment to which, rigorously carried out, the extraordinary results which I have indicated are ascribed. That it seems heroic, thus briefly stated, cannot be denied. That it is heroic to those who see it practised for the first time is more than true. Preconceived notions in regard to the management of typhoid cases are violated. The frequent disturbance for the purpose of taking temperatures and bathing, the fact that the patients are compelled to rise from their bed, and with the aid of the attendants, to step into the bath, the

[1] Le Bulletin Médical, February 26, 1888.

[1] Better not until the evening temperature has not risen above normal, say 99 5°, for a week. The unstable temperature of convalescence deprives transitory rises to 100.4° or thereabouts of any great significance.—J. C. W.

pallor, shivering, and the blueness of the extremities which show themselves during the course of the bath, and continue for a varying time after the patient is put to bed, demand conviction on the part of the physician, and the courage of conviction to continue.

It is only when the favorable effect upon the condition of the patient is seen, and when we reflect that in every hundred cases at least ten lives, which would be lost under the expectant-symptomatic treatment, are saved by strict cold bathing, that we dare to proceed.

What is the effect upon the course of the disease in cases treated from the beginning; that is, before the fifth day? Brand declares that the classical picture of typhoid fever is no longer seen. It may be objected to this that we do not get our cases before the fifth day; and even if they come under observation so early a positive diagnosis cannot always be made at that time. Only in garrison life and in epidemics will a treatment so radical be justifiable at the onset of a vague febrile disease. But Brand's statement is true of cases in which treatment is instituted at a later period, even so late as the middle of the second week. After six or eight baths the familiar picture is no longer seen. Delirium ceases, stupor gives way to light somnolence, from which the patient is easily aroused with a bright expression and a clear mind. The tongue becomes moist and clean, and remains so. There is desire for food, and very commonly a complaint of hunger. The abdomen is not tympanitic. Diarrhea is rarely excessive or troublesome. In short, there remains, in the words of Brand, of the ordinary picture of typhoid nothing more than (*a*) a moderate fever, (*b*) an unimportant bronchial catarrh, (*c*) enlargement of the spleen, (*d*) the rose rash, and (*e*) infiltration of the intestinal glands. Everything else is prevented, and what might have been a severe case runs its course as a mild one if the patients are brought under treatment sufficiently early. Exceptions to this statement occur only when complications develop at the onset. There are rapid wasting and progressive anemia, as in all prolonged febrile diseases, but severe enteric fever is changed to mild, the mild to a still milder form. This is brought about through the control of the temperature and by preventing disturbances of normal functions. The treatment is directed against the typhoid process as an entirety.

It does, it is true, not only reduce the temperature; the repetition of the bath also *controls* the temperature and keeps it down. But the bath does much more than this. It acts upon the nervous system in such a manner as to enable it to withstand the toxic influences of the infecting principle and the product of its evolution. This it doubtless does by the action of cold water upon the peripheral nerve-endings, a reflex stimulus being transmitted to the nerve-centers presiding over the circulation, respiration, digestion, excretion, and nutrition. This general reinforcement of function is shown by improved action of the heart, the first sound continuing distinct, the pulse being slower and more regular, and the improvement in the arterial tension showing itself by an absence of dicrotism; by persistence of appetite and digestive power, permitting freer alimentation without gastric disturbances; by deepening and slowing of the respiration; and by the absence of nervous symptoms, the increased excretion, the prevention of complications, and the rapid convalescence.

As was pointed out by Jürgensen, every attempt to deviate from the routine treatment as above laid down is followed by less satisfactory results. The treatment thus stands by itself as a definite procedure, to be distinguished from treatment by graduated baths, the cold pack, cold affusions, spraying, and other hydro-therapeutic measures. It is especially to be looked upon as something distinct and different from the antipyretic treatment. Upon this Brand and his followers insist.

REPREHENSIBLE, DEBATABLE, AND NECESSARY ANTISEPTIC MIDWIFERY.[1]

BY HENRY J. GARRIGUES, A.M., M.D.,
CONSULTING OBSTETRIC SURGEON TO THE NEW YORK MATERNITY HOSPITAL; CONSULTING OBSTETRICIAN TO THE NEW YORK INFANT ASYLUM; GYNECOLOGIST TO ST. MARK'S HOSPITAL, ETC.

THERE are always some people whose nature impels them to push everything to such extremes that the best becomes distorted and injurious. Antiseptic midwifery has not escaped the common lot. In the name of this most excellent system things have been done, and are, perhaps, yet being done, that, far from protecting the parturient woman, expose her to greater danger than if she were left alone to give birth to her child unassisted by anybody.

In a recently-published work on obstetrics we read that of late in every case of delivery, not only the vagina but the uterus is washed out with a solution of carbolic acid or corrosive sublimate, immediately after delivery, or an Ehrendorfer's suppository pushed up into the womb beyond the internal os. I suppose the author has good authority for this statement. To me, the thing is new—or rather, very old. Thirty years ago every patient delivered at the School for Midwives, in St. Petersburg, had her uterus washed out with a solution of chlorinated lime, two or three hours after delivery, which procedure was repeated several times during the first forty-eight hours.[2] Nowadays I am not aware that anybody uses prophylactic intra uterine injections, and if they are used, it is hardly necessary to add that the practice is unjustifiable both from a theoretic and a practical standpoint. The normal uterus does not contain microbes, while the manipulations necessary for such a treatment might bring them there, not to speak of the danger of interfering with the thrombi closing the uterine sinuses.

Quite recently a French author has gone so far in his prophylactic antiseptic zeal that he administers a vaginal douche of a 1 : 2000 solution of corrosive sublimate twice a day, beginning *four weeks* before the expected time of confinement. During the last week he injects only once in two days, but then he places a tampon of iodoform-gauze in the vagina, changing it every two days and leaving it to be expelled by the child. After delivery there are again injections with corrosive sublimate and tamponing with iodoform-gauze, besides the application to the vulva of a pad impregnated with one of these substances.[3] It is almost amusing to see this misplaced

[1] Read before the Section on Obstetrics and Gynecology of the New York Academy of Medicine, October 27, 1892.

[2] O. von Grünewaldt: Petersburger med. Zeitschrift, 1863, vol. v, p. 28.

[3] Verchère: Centralblatt für Gynäkologie, 1890, No. 37, vol. xiv, p. 663.

activity in the light of the endeavors of others to simplify the antiseptic prophylaxis and the splendid results obtained in that way.

As belonging to reprehensible antisepsis, I would also reckon the use of vaginal injections of strong solutions of mercuric chloride before or after delivery. In another paper,[1] I have reported twenty cases of death from this drug in obstetric practice, to which I have added two new cases. I came to the conclusion that it was not safe to use a stronger solution than 1 : 5000 and not more than three pints.

It is now nine years since strict antiseptic midwifery was introduced in the Maternity Hospital, and the result has uniformly been, there as elsewhere, an enormous decrease in mortality and morbidity. During the nine years (1875–1883) preceding the introduction of the new treatment, 3504 women were confined, 146 of whom died, *i. e.*, 4.17 per cent. During the last six months before the change was made, 237 women were delivered, 19 of whom died, or 8 per cent.; and of these, 17, or 7.17 per cent., succumbed to sepsis. During the last month the total mortality reached even 20 per cent., and that from infection 15.69 per cent.

During the first three months after the change, from October 1, 1883, till January 1, 1884, we had 102 deliveries without a single death. From that time the mortality has been as shown in the following list:

		Deaths.		Per cent.	
Year.	Deliveries.	Total.	From sepsis.	Total mortality.	From sepsis.
1884	522	8	4	1.53	0.76
1885	537	3	0	0.56	0 0
1886	446	5	1	1.12	0.22
1887	389	5	1	1.30	0.26
1888	377	3	0	0.79	0.0
1889	314	1	0	0.32	0.0
1890	345	4	1	1.13	0.29
1891	240	1	0	0.42	0.0
Total,	3170	30	7	0.90	0 19

Thus the total mortality has been reduced to between one-fourth and one-fifth of what it used to be. It is less than 1 per cent.; that from sepsis is less than one-fifth of 1 per cent.; and there have been whole years in which not a single patient has been lost in this way.

If these figures are eloquent enough to fill our hearts with joy, and to teach a lesson to the profession of this city and this country in general, a comparison with other institutions both here and abroad shows that yet better results might be obtained. Thus, the report of the Sloane Maternity shows that in the first 1000 cases only 6 were lost, and of these only 1 of septicemia.[2] Pippingsköld, of Helsingfors, had during the years 1884–1887, in an average of 650 deliveries per annum, a total mortality of only 0.29 per cent.[1] Mermann, physician to the Lying-in Asylum of Manheim, reached nearly 700 cases before he had a death, and that was due to rupture of the uterus.[2] The late Carl von Braun, of Vienna, had 1004 consecutive cases with only 2 deaths.[3]

Dr. McLane nearly in every detail follows the same treatment as that in use in the Maternity Hospital. That the result in the latter institution is less good is probably due to the influence of the intimate connection with the City Hospital, to the presence of a large training school for nurses employed in both hospitals, and to the lack of experience in the constantly changing assistants.

The nature of the antiseptic measures used in the Maternity Hospital is known, or may be learned from my little book.[4] The only change I have made in the course of these years has been to substitute creolin for corrosive sublimate for vaginal and intrauterine injections. Since the 2 per cent. emulsion originally used caused rather severe smarting in some patients, I reduced the strength to 1 per cent. This drug combines the three valuable qualities of being a lubricant, an antiseptic, and a hemostatic, besides being so innocuous that it may be taken internally in large doses without causing the least disturbance.

The value of many of the details in our treatment is, of course, debatable, and perhaps open to improvement. Thus I think the routine use of ergot might be dispensed with. It is a remnant from a time when the real antiseptic prophylaxis was yet defective. The last time I was on duty I did not use it, and did not see any disadvantage in consequence.

The question whether or not it is advisable to use vaginal disinfectants before delivery has of late years been much debated in Germany, and the clinical results obtained with both systems offer such contradictions that I do not think the answer can yet be given. While Leopold, Mermann, Glöckner and Keller, Szabó and Bumm, think that these increase mortality and morbidity, Frommel, Steffeck, and others have had the opposite experience. Personally, I am opposed to rubbing or scrubbing the vagina, as some think necessary, but as to a vaginal injection before delivery, I believe yet that it is useful. It will remove both dirt and microbes, and if at the same time it removes a layer of thick mucus that lubricates the vagina and, therefore, protects the perineum, it is easy to see that new mucus is

[1] Garrigues: "Corrosive Sublimate and Creolin," Am. Journ. of the Med. Sci., August, 1889, vol. xcviii, p. 109.

[2] James W. McLane: Am. Journ. Obstetrics, April, 1891, vol. xxiv, p. 417.

[1] J. Pippingsköld: Centralbl. f. Gynäk., 1891, No. 33, vol. xv, p. 680.

[2] Mermann: Centralbl. f. Gynäk., 1891, No. 11, vol. xvi, p. 209.

[3] Herzfeld: Centralbl. f. Gynäk., 1890, vol. xiv, p. 784.

[4] Garrigues: Practical Guide to Antiseptic Midwifery in Hospitals and Private Practice. Detroit, Mich.: George S. Davis, 1886.

poured out in abundance to replace the first. While I think one vaginal douche is useful, I do not believe in repeating it, as the epithelium suffers, and even pus may begin to form by too much contact with fluid. After the birth of the child no vaginal injections should be given in normal cases, but only if it has become necessary to introduce the hand or instruments into the vagina. Intra-uterine injections are given on the same principle if the womb has been entered, or in cases of macerated fetus.

To cover the presenting part and the opening vulva with antiseptic lint is perhaps superfluous, but it often facilitates manipulations to have a cloth put on the presenting part, and if one is used it ought, of course, to be disinfected. After the birth of the child, when the vulva is gaping, I take it to be still more important to cover it.

That the occlusion-dressing is not necessary appears from the fact that, for instance, in the large lying-in department in Vienna, they do not use any kind of cover for the genitals, and still have as good results as any. But admitting so much, I still have a great predilection for the occlusion-bandage, and think it ought to be kept up. It is dangerous to draw any conclusion from the results obtained in the case of poor German and Austrian women, hardened by field labor and numberless other hardships, as compared with those in the case of the women of our country, accustomed to much greater luxury, but probably paying for this privilege by greater vulnerability and less power of resistance. The dressing is exceedingly pleasant to the most refined ladies. It is particularly useful in poor private practice by keeping out dirt that might otherwise enter the genital canal from bedclothes or wearing apparel. By its porosity it sucks out the discharges from the vagina, and thus, to a great extent, prevents the formation of clots. A decided advantage is also its deodorizing property, which insures the purest and sweetest air even in wards in which half a score of confined women are gathered together.

Of late, Credé, Winckel, and others have written much against vaginal examinations. They go even so far as to declare that they should be avoided altogether in normal cases. By the patient's groans and abdominal palpation, they say, sufficient information about the nature and progress of the labor may be obtained for the guidance of the physician. While I admit and have always taught that only few examinations should be made, and that in ordinary cases the examining finger should not penetrate beyond the external os, I think it is not only unnecessary, but wrong, to forbid vaginal examinations altogether. It is unnecessary, because with proper antiseptic precautions no infectious germs are introduced from without, and by not entering the uterus there is no risk of carrying up into that organ any that may have been left in the vagina. It is wrong, because the beginner will be deprived of a familiarity with what is felt in the vagina during labor, a knowledge that is indispensable for the recognition and treatment of abnormal cases.

Nurses, on the other hand, should not be taught to make vaginal examinations. Their report is in most cases unreliable; and less familiar with all the details of antisepsis, they may infect the patient before she ever comes in contact with the doctor.

While opinions differ among leading men in regard to these minor points, all agree as to the fundamental rules of antiseptic midwifery. Doctors and nurses must disinfect their hands and occasionally their arms, as for a celiotomy. The old-fashioned lubricants, oil, lard, butter, vaselin, etc., are banished. If, exceptionally, a substance of that sort is needed, it must be an aseptic preparation, such as carbolized mollin. The patient's skin and outer genitals are scrubbed and disinfected.

After the birth of the child not a finger touches the genital canal in normal cases.

If any part of the placenta is left behind it must be removed immediately.

All instruments are rendered aseptic by boiling, or strong antiseptic solutions.

The benefits of the antiseptic treatment in hospitals has been so enormous that all criticism has been silenced, and every doubt has vanished. From one end of the civilized world to the other the treatment is essentially the same, and our country is abreast of all others. But how different is it when we come to private practice. There was a time, and it is not more than seventeen years ago, when the mortality in lying-in hospitals was so large that the International Congress of Physicians and Surgeons, at Brussels, adopted resolutions to the effect that all such institutions should be abolished. Now the tide has turned. Now the hospital is the safe place to be delivered in. It is in the private dwelling that lurks the danger. The poorest, the dirtiest, the most dissolute women are safely confined in a lying-in asylum; the richest, the youngest, the purest, the loveliest, succumb in giving birth to a child at home. I am not prepared to furnish statistics, but my own personal experience is enough to teach me that in my own private obstetric practice I have neither death nor sickness, while in consultation practice I see frequent deaths from childbirth or abortion. We need not nowadays search for the cause of the difference. With our present knowledge we know that it is only that I use strict antisepsis, and most general practitioners do not. Some smile benignly at the mere idea of using such superfluous measures in private practice; others have a little mercuric chloride or carbolic acid around the house, but use it without system or per-

severance; and yet, as our lying-in asylums are arranged, there is greater danger of the patient being infected by doctor or nurse in private practice than in the institutions. The young men who compose the house-staff of a lying-in asylum are strictly forbidden to enter the wards of a hospital; they have no private practice; they do not see an autopsy, and if, unfortunately, the asylum is a department of a general hospital, the nurses are subjected to a thorough disinfection as to their bodies and clothes, under the supervision of their superiors, before they go from one institution to the other; while in private practice the physician may have treated a case of erysipelas or diphtheria the moment before he is called to the confinement, and nearly all private nurses take promiscuously medical, surgical, and obstetric cases, disinfecting themselves as best they know, or as the combat between natural laziness and acquired conscience will prompt them.

In my opinion, there should be no difference in the antiseptic prophylaxis in private and in hospital practice. Since we know from our hospital experience that the dangers that in olden times surrounded childbirth can nearly all be eliminated, is it not a shame, or well-nigh a crime, to neglect, in dealing with women who pay us for our trouble, the precautions which we invariably use in gratuitous hospital practice?

In this country the doctor has even the advantage over many others, that he has the confinement case from the very start in his hands, before any ignorant, dirty, or conscienceless midwife has prejudiced the result by her baneful touch.

The expense of what is really needed for the antiseptic treatment is small; the treatment itself is pleasant; its effects are only beneficent. What, then, can be the objection to its universal use in private practice? In hospital practice the victory is ours all along the line. Now let us unite our efforts, let us set shoulder to shoulder, and let us join in a general attack on the opposition yet offered by the general practitioner in private practice. I beg to offer the following preamble and resolution:

"*Whereas*, experience both in this country and abroad shows that by strict antiseptic measures the total mortality in lying-in hospitals may be reduced to a few per thousand;

"*Whereas*, deaths due to childbirth or abortion are yet common in private practice;

"*Resolved*, That, in the opinion of the Section on Obstetrics and Gynecology of the New York Academy of Medicine, it is the duty of every physician practising midwifery to surround such cases in private practice with the same safeguards as are being used in hospitals."[1]

[1] Preamble and resolution were unanimously adopted.

INTESTINAL OBSTRUCTION.[1]

BY JAMES M. BARTON, A.M., M.D.,
SURGEON TO THE JEFFERSON COLLEGE HOSPITAL, AND TO THE PHILADELPHIA HOSPITAL, PHILADELPHIA.

NONE of us knows at what moment he may be called upon to treat intestinal obstruction—a most serious condition that strikes down and destroys so quickly those in the most robust health. And yet there is nothing in medicine or surgery that promises more in the near future than the operative treatment of this condition. With the recognition which the profession now has of the very slight danger there is in opening the abdomen, it only requires that the pathologic condition should be recognized early, and operative treatment instituted while the patient is still able to bear it, in order to get admirable results.

But a few years ago strangulated hernia was treated by hot and cold applications, by taxis, by waiting, by inversion, etc., before operation was considered, and the mortality was enormous. To-day the importance of operating at once is recognized, and death from strangulated hernia is rare; and there is no more reason for delay in internal than in external strangulation.

Intestinal obstructions are divided into acute and chronic. For convenience we shall consider the chronic forms first.

In chronic obstruction the patient suffers with abdominal pain of a colicky character; it is not constant, and if the difficulty is in the smaller bowel, it often comes on at a definite time after eating. There is gradual emaciation and failure of the vital powers. Vomiting may be very trifling, especially if the obstruction be low down, and it is rarely stercoraceous. Constipation, alternating with diarrhea, is not unusual. When the obstruction is low down, tenesmus is a constant and most valuable symptom. A patient on whom I operated for chronic obstruction due to malignant disease stated that he had had from ten to fifteen passages during the night, each being a small, white, hard mass about the size of a cherry. In a case on which I recently operated, I regarded the patient's answer as typical. On inquiring what was the condition of the bowels, he answered, "Very costive." "How often are they open?" "Four or five times a day." Further investigation showed that the constant tenesmus present made him go often to the closet, passing each time a small quantity of hardened feces. This is a very constant symptom in chronic obstruction, and I know of no other disease in which it is present.

It is not very unusual for patients to have recurrent attacks of almost complete obstruction, with little or no difficulty in the interval. In one of my cases,

[1] Read before the Hunterdon County, N. J., Medical Society at its annual meeting, October 18, 1892.

for a year before the operation the patient had repeated and increasing attacks of obstruction, during which there was entire loss of appetite, obstinate constipation, constant vomiting, great abdominal pain and tenesmus, similar, she stated, to labor-pains. At the time of these attacks a tumor about the size of the adult fist appeared in the lower part of the abdomen. The tumor was an intussusception caused by a cicatricial contraction of the bowel. These attacks would last about two weeks, and were followed by an interval of entire relief, lasting nearly as long. Tympanites is not an early symptom, but it is common late in the disease.

Chronic obstructions may be due to (1) accumulations and impactions of fecal matter; (2) constrictions of the bowel due to cicatricial contraction or to malignant disease; (3) chronic invagination; (4) inflammatory changes in the wall of the gut due to external violence; (5) pressure of abscesses and growths external to the intestine.

To make a differential diagnosis of these various conditions is not usually very difficult. The most important one to exclude before considering the propriety of an abdominal section is obstruction by fecal accumulation. This condition is most common in adult women, the subjects of hysteria or insanity, with a history of continued and increasing constipation, a distended abdomen, a doughy tumor at the sigmoid flexure, and without emaciation. If the obstruction is high, vomiting is common; if it is low, vomiting is rare, but tenesmus exceedingly common. If there is but little urine secreted, the obstruction is probably high up. If it be in the duodenum or upper part of the jejunum, vomiting is copious, but never feculent, and the vomited matters are usually bile-stained. If the obstruction is due to malignant disease, the symptoms rapidly increase in severity, and if the tumor can be felt it may be noted to rapidly increase in size. A tumor that appears and disappears, and is hard and sharply outlined, is probably an invagination; or if doughy and irregular in contour, may be impacted feces caught by a stricture of large caliber. In obstruction from cicatricial contraction there is usually a history of similar and less severe attacks. In a recent case the diagnosis was readily made without feeling any tumor and before I operated. The obstruction was in the ascending colon; it was an intussusception, which was headed by a malignant growth. That the disease was in the large bowel was shown by the marked tenesmus, and the absence of vomiting. That it was in the ascending colon was shown by the gas in the bowel raising the abdominal wall at the right iliac fossa when it was obstructed by the growth. When I saw the patient he had diarrhea, which is a symptom of an intussusception, and the diagnosis would have been certain if he had had a movable tumor that occasionally disappeared. The rapidity and severity of his symptoms, which had been present but two months, showed that the obstruction at the head of the intussusception was malignant.

The advantage of locating the obstruction and diagnosticating its character is that we are able to make a small incision over the seat of the disease, instead of searching the entire abdomen through a long incision. In the case referred to, I made a short incision at the outer edge of the rectus muscle, and was able to find the disease at once.

TREATMENT. If we are able to locate the disease, we open the abdomen over it; if not, we make a median incision large enough to introduce the hand, and the seat of the obstruction may be evident at once, as the bowel above the obstruction is greatly dilated and reddened, while below it is much contracted. If it be not evident, we feel for the head of the colon; if it be distended, we know that the obstruction is below; if it be collapsed, we know that it is above. Then tracing up or down, as may be necessary, there is but little difficulty in finding it.

If the obstruction be due to a growth within the bowel, several inches of the intestine should be removed with it, together with all affected glands, and the operation completed by bringing the intestine together by "lateral anastomosis," with not less than a four-inch opening. If, when the bowel containing the growth has been excised, the patient is greatly exhausted, a temporary artificial anus should be made, and the anastomosis operation performed some weeks later.

"Lateral anastomosis," or bringing loops of bowel side by side, and establishing an opening between them, is to-day considered preferable to joining them end to end. If a portion of the gut has been excised, the divided ends are inverted, closed by suture, the loops of bowel laid so that they overlap, and an opening established between them. If the obstruction is not removed, the bowel above the obstruction is laid beside the bowel below it, and the opening established. If the obstruction allowed to remain be malignant, and the patient has but a short time to live, the more rapid method of establishing the opening by the aid of the catgut rings of Abbé, or the rubber ones of Ashton, is to be preferred. As the small opening obtained by the rings rapidly contracts and reobstructs, they are only suitable for such cases of malignant disease. If the disease has been thoroughly removed, the anastomosis should be made without rings by the method recently devised by Prof. Abbé, which gives a four-inch opening. In a case at the Jefferson College Hospital, in which I recently operated by this method, I found that it is easily and safely performed, makes a strong and reliable union, and

gives a grand opening, but it takes much more time than the operation by the rings, and requires more care to prevent obstructive flexure of the bowel at the extremities of the line of suture.

In a patient of Dr. Jones, of Plymouth, Pa., from whom I removed several inches of intestine, containing an obstructive epithelioma, in 1887, before anastomosis by plates and rings was known, I made an artificial anus, and introduced Dupuytren's enterotome. The result has been entirely satisfactory. The woman not only recovered from the operation, but, as five years have elapsed, she may be considered cured of the carcinoma. She is quite able, Dr. Jones informs me, to do a full day's work at the wash-tub, and her bowels act daily by the natural route.

This method of at once applying the enterotome might be used with advantage in those cases in which the operation has to be hurriedly completed by a temporary artificial anus, and in which the obstruction is so high that there is not enough bowel above the artificial anus to properly nourish the patient. If the enterotome was applied at the time of the operation, in a few days the entire length of the bowel could be used, and when the condition warranted it, the anastomotic operation could be performed.

In the case of a growth external to the bowel obliterating its lumen by pressure, the growth can rarely be removed; the bowel usually has strong attachments, and is often buried in the growth. Under these circumstances, as well as when a growth within the bowel has contracted extensive external attachments, an artificial anus must be made, or the bowel above and below joined by lateral anastomosis.

If the obstruction is due to contraction, and but little of the length of the bowel is involved, a longitudinal incision may be carried through the bowel at the obstruction, and the incision sewed up transversely. This will greatly increase the caliber of the bowel.

The incision must not be too long, or it may flex the bowel so sharply upon itself as to cause obstruction. If this method cannot be used, "lateral anastomosis," with the long incision, will be necessary.

In acute obstruction the condition is very different. The patient is attacked by symptoms of the most urgent and distressing character, which run a rapid course, and unless relieved by art, will terminate fatally in a few days. "The patient is taken suddenly with intense, agonizing pain in the abdomen, accompanied by great vital depression; the abdomen is tender to the touch; there is obstinate constipation; vomiting occurs at once, first of food, later of 'coffee-ground-looking' material, and ultimately it becomes stercoraceous. There is tympanites, great muscular weakness, the face is drawn with pain, and has an aspect of horrible anxiety, the features are pinched, the voice weak and muffled, cold sweat covers the cyanotic limbs, the complexion is livid, the pulse and respiration are rapid, and the temperature is subnormal."

These symptoms are the usual ones in intestinal obstruction, but their severity is not due to the intestinal obstruction, but in reality to the accompanying strangulation, which is found in nearly all cases of acute obstruction. By intestinal *obstruction* is meant the closing of the caliber of the bowel, so that none of the intestinal contents, whether fecal matters or gas, can pass; but if the constriction is tighter, it not only obstructs the fecal circulation, but the arterial and venous circulation as well; this condition is termed *strangulation*. It may be more or less complete, and on its completeness depends the severity of the symptoms.

Usually, the gut, when first caught within a hernial ring or some internal opening, has only the fecal circulation interfered with, but as the incarcerated bowel becomes distended with gas, it presses more tightly at the point of constriction, and the venous and, perhaps, the arterial circulation is also interfered with. Nor is it usual for the entirety of the incarcerated bowel to slough; in the average case only a portion sloughs, and that late in the attack. But there are cases in which the circulation of the blood is cut off at the moment of incarceration. In one case of strangulated hernia in a young German on whom I operated eighteen hours after the intestine had been caught, the gut was black and gangrenous up to the very margins of the ring, and had to be removed.

In a case of volvulus of the transverse colon that I saw in consultation with Dr. Runkle, of Philadelphia, the patient was in collapse from the first, and died in less than forty-eight hours. The twist was so tight that the intestine was sloughing from one end to the other.

In another case the patient took a purgative Saturday night; it acted freely Sunday morning; at noon, symptoms of obstruction appeared. I saw him that night, and arranged to operate early the next morning, but he died before the time arrived, in less than twenty-four hours from the onset of the symptoms.

On the other hand, we may have complete obstruction, coming on suddenly and acutely, without strangulation and without collapse. I operated on a patient of Dr. James Graham, of Philadelphia, eight years ago for a strangulated umbilical hernia. It remained well until a few months ago, when it suddenly returned with symptoms of obstruction. Dr. Graham reduced it under ether, but the symptoms continued. Ten days later I saw the patient, and found that she still had complete obstruction.

She had constant vomiting and obstinate constipation, neither fecal matter nor gas having passed for over ten days, but her general condition was excellent; there was no collapse and no evidence of strangulation. That evening, while the nurse was preparing the abdomen for the operation, she felt something give way; there was immediately a feeling of great relief; shortly after flatus passed by the bowel, followed in the morning by fecal matter. In another case there was complete obstruction of sudden origin, with constant vomiting and no passage from the bowels for many weeks, but there was no collapse; at the operation we found complete obstruction due to a large enterolith, but the bowel was in excellent condition. Sudden and complete obstruction without ultimate strangulation and collapse are extremely rare, and these symptoms may be expected by the third or fourth day, and if the operation is to be successful no time is to be lost.

Acute obstruction may be due to (1) strangulated hernia; (2) impaction of foreign bodies or enteroliths, gall-stones, etc.; (3) intussusception; (4) volvulus; (5) strangulation by bands; (6) acute onset of one of the forms of chronic obstruction. Strangulation by bands is subdivided into (1) the solitary band; (2) cords formed from the omentum; (3) by Meckel's diverticulum; (4) by normal structures forming abnormal attachments, as an adherent vermiform appendix or a Fallopian tube; (5) through slits or holes in the mesentery or omentum.

DIAGNOSIS. Acute peritonitis occasionally simulates acute obstruction, but may be distinguished by the nature of its onset, the character of the vomiting, the quality of the pain, by palpation of the abdomen, and by the high temperature, though the latter is unreliable, as the temperature is not always high in peritonitis. Lead-colic may be excluded by the history, and other evidences of the poison.

Acute intussusception occurs usually in children. Vomiting is not a prominent symptom. There is often a discharge of blood from the rectum, attended by diarrhea and tenesmus. A definite tumor can often be felt. These cases may be fatal in twenty-four hours, or may last for days or weeks.

Strangulation by bands usually occurs in young adults with a previous history of peritonitis, and, perhaps, previous attacks of obstruction. The pain is severe; there is no tenderness; the vomiting is frequent and copious, becoming stercoraceous on the fourth or fifth day; the constipation is complete; there is extreme collapse, and death occurs on about the fifth or sixth day.

Volvulus occurs at the sigmoid flexure, or at the transverse colon of males of about forty years of age who have suffered from constipation. The pain is often referred to the back; the vomiting occurs late or not at all; the prostration is not usually extreme; death occurs on about the sixth day. To be effectual, the treatment must be prompt. If irrigation of the stomach and distention of the colon with fluids or gas does not relieve the patient, the abdomen must be opened at once, and under no circumstances delayed after the appearance of "coffee-ground" vomit. When acute obstruction is suspected, the operator should be chosen at once; he should be asked to see the patient immediately, and all preparations made for the operation, so that the moment the diagnosis is unmistakable there may be no delay whatever. If the cause of the obstruction is known, the most convenient incision is made; if not known, a median incision long enough to introduce the hand is employed. The escaping bowel must be kept in warm, moist, aseptic compresses. Explore first the ileo-cecal region, the sigmoid flexure, and the pelvis. In a recent case of acute obstruction, it was not until I had nearly all of the intestines out that I found the obstructed bowel deep in the pelvis where it was held by a band formed during a previous attack of peritonitis. If the obstruction is caused by an enterolith or a foreign body, this must be pushed up into healthy bowel and removed through a longitudinal incision, which is closed by a continuous Lembert suture. If the obstruction is due to bands, these should be divided and removed, and if the bowel be gangrenous it should be excised. If the bowel is not gangrenous, but greatly overdistended, even if the cause of the obstruction be readily removed, the bowel must not be left in this condition, but must be emptied, even if we have to puncture it for the purpose; even a temporary artificial anus may be necessary.

Volvulus can rarely be untwisted unless we empty the gut by puncture. This gut can be temporarily clamped while we untwist, and then closed in the usual manner. To prevent the recurrence of the twist, Braun, of Königsberg, recommends suture of the colon by silk to the lateral abdominal wall.

If the patient is in extreme collapse, with a rigid, distended abdomen, operation should not be refused. No anesthetic is needed, or only a few drops. A short median incision is made, the first distended loop of bowel that presents itself is seized and withdrawn; this is rapidly fastened to the edges of the incision, and an artificial anus made. If the patient survives, more can be done later.

For Singultus.—STILLER (*Centralbl. f. klin. Medicin.*, 1892, No. 42, p. 882) reports having successfully employed pilocarpine hydrochlorate in the treatment of obstinate singultus of nervous or hysterical origin. A tenth of a grain may be given in solution by the mouth three or four times a day.

SIMPLIFIED DIRECTIONS FOR EXAMINING THE STOMACH.

BY CHARLES G. STOCKTON, M.D.,
PROFESSOR OF MEDICINE, MEDICAL DEPARTMENT, UNIVERSITY OF BUFFALO.

THE systematic examination of the stomach can be no longer disposed of hurriedly. Even those cases that at first sight seem simple, upon further investigation often present difficulties that time and study alone can make clear.

To begin with, a general examination of the patient should be instituted, including those common sources of reflex irritation, the eyes, the nose, and the genitalia, for it happens frequently that the stomach-derangement is but an expression of insufficient oxygenation, anemia, uremia, weak heart, hysteria, or of eye-strain, disease of the turbinates, or pelvic mischief; and permanent relief can scarcely be obtained until the chief and contributing causes are effaced.

It is wise to inquire after special subjective symptoms, and one may begin with the appetite. Is it good, poor, or excessive? What is the character, and what are the hours of meals? Is the food bolted? Are the teeth sound? Is the food well salivated, or is it washed down by fluids? Is there pain or other distress following meals, and if so, after how long a time, and where located? Are there eructations of gas or food? Is there pyrosis, nausea, or vomiting? Is there distention of the abdomen or rumbling in the stomach or bowels? Are there hurried evacuations following meals? Are the bowels regular?

These simple questions, if intelligently answered, will yield information in proportion to the extent of the examiner's familiarity with the results of precise study of the gastric contents in various affections and under divers conditions, and at times are adequate to allow of a provisional diagnosis, without further tracking. Subsequent events or contradictions in symptoms, however, may lead one to further proceedings. If so, have the abdomen divested of all covers, and carefully examine the part, either in the horizontal or in the upright positions, or in both, by inspection, palpation, percussion, and auscultation. Sometimes by inspection much may be learned of the size, shape, position, contents, and peristalsis of the stomach. Much more will be ascertained by palpation if the hands are well trained, and here experience is particularly precious. To avoid exciting unnecessary contraction of the muscles, and yet to succeed in locating points of tenderness or small indurations, to discover areas having unusual resistance, to estimate the strength of the gastric reflex, to develop the *clapotage* or "splashing sound," and to discover the size, shape, and position of the stomach, require long practice; and while the most expert may fail in very fat or spasmodic individuals, yet the method is invaluable. Percussion, which should usually be immediate, and auscultation, by means of a large (Dennison's) binaural stethoscope, strengthen one's conclusions, and stethoscopy, in connection with palpation and percussion—"conjoined methods"—is especially useful in studying the motions of the stomach.

Various expedients are employed to render these physical signs more decisive, as that of placing the patient on the chest and knees across two chairs, with the abdomen dependent; or upon one side; the stomach may be distended with gas by administering 2 grams of sodium bicarbonate, followed by 1 gram of tartaric acid, both in solution. If this is inadequate to distend the stomach, increase the amount of gas. (Or this matter may be postponed until the stomach-tube is introduced, when, after securing the gastric contents, air may be pumped into the stomach through the tube by means of Allen's pump, or of rubber bulbs.)

Instead of the stomach, the colon may be inflated by means of acid and alkaline solutions, separately injected with a syringe, or one may be distended with gas and the other with water.

By such methods it is possible to learn accurately the shape, size, and relations of the stomach, and this knowledge has come to be a necessity, if we hope to relieve many conditions that are acknowledged to be common and important.

The next step is to examine the gastric contents, for which recourse is had to Leube's tube. As a means of precision in diagnosis, this instrument has few equals in the armamentarium of the physician. Too often it is employed merely for the therapeutic end of washing out the stomach, a procedure of conceded usefulness under certain circumstances, and yet one so injudiciously and needlessly applied that some have unjustly discredited it.

Select a soft tube, five feet long, one and one-half inches in circumference, having two good-sized openings near its distal extremity. A series of ink lines should be traced like rings around the tube, one inch apart, beginning twenty inches from and ending thirty inches from the lower extremity. When the tube is in the stomach these lines will serve as guides in measurement, using the incisor teeth as the fixed point. Thus it is possible to say precisely just how much tube has been introduced. To reach the lower border of the stomach in most adults it will be required to pass the tube twenty-two inches, rarely less than twenty, sometimes twenty-four. When there is gastrectasis, from twenty-four to thirty or more inches will be necessary.

The proper distance may be determined partly by the previous external examination, partly (and espe-

cially) by the success in the efforts to get a good return flow when siphonage is practised. If too short, the tube does not reach; if too long, it curves up above the level of the fluid and the current is interrupted. Although the contrary has been asserted, really nothing can be learned by a sense of resistance communicated when the tube reaches the bottom of the stomach, provided the instrument has the proper flexibility.

Much is said about the repugnance that individuals have to the use of the tube and the poor success that physicians have in inducing them to submit to it. This is a needless exaggeration, and may be accounted for by lack of expertness on the part of the physician and by the apprehensions aroused in the patient by the impressive description of the procedure and the solemn injunctions that the patient must exercise self-control.

The patient having consented, when about to pass a tube, every preparation should be made, and the moment the patient is seated the tube should be quickly slipped down; then, if any strangling ensues, the patient must be instructed to breathe slowly, and in the great majority of cases all will be overcome without serious objections or subsequent complaints.

It is not well to disturb the patient with too many directions, but it is sometimes worth while to tell him not to throw the head backward, and after the tube is introduced not to attempt to swallow the mucus that accumulates in the mouth, as this must be allowed to dribble outward from the lips.

An effort should now be made to withdraw a portion of the undiluted stomach-contents for minute examination, a matter under certain circumstances attended with some difficulty. Success is generally attained if the food has been finely divided and the attempt at aspiration made not too soon after eating. The best means of obtaining the contents undiluted is by compressing the patient's abdomen with the hands, at the same time inviting expulsive efforts, as described by Ewald and Boas. This occasionally leads to vomiting, on the advent of which the efforts should be temporarily discontinued, and if merely a small amount is required, recourse may be had to the "stomach-bucket" devised by Max Einhorn.

To simplify the examination, it should be conducted first an hour after breakfast consisting of a stale roll and a glassful of water (Probefrühstück); later, a more complex meal, for instance, a luncheon of meat, with bread and butter, no fluid being permitted, save water; and still later studies may be made of yet more general meals.

It will now be learned that certain varieties of food are well disposed of, while others quite uniformly disagree, or are present in great part entirely undigested or unchanged, or it will be found that a meal that is normally digested at certain hours of the day is at other times not successfully managed, but becomes the source of irritation and distress. This knowledge alone will repay both physician and patient for all possible trouble with the stomach-tube, but other important advantages remain to be described.

The gastric contents should be scrutinized first as to their gross appearances, to ascertain if they show the solvent effects of the gastric juice; if they contain too much fluid or too much mucus; if they are of proper color and of natural odor.

Filter the contents, and take the reaction of the filtrate. If acid, discover whether hydrochloric acid,[1] organic acids, or acid salts, one or more, account for its acidity. If acid, test the total acidity, or, if alkaline,[2] the total alkalinity. Sometimes the gastric filtrate is neutral. The amount of hydrochloric acid present is of vital importance. The presence of lactic acid in appreciable quantity longer than an hour after the test-breakfast is pathologic.[3]

So also there may be found acetic acid, or the fatty acids, usually disclosed by characteristic odors upon heating; and although less frequent evidences of disturbance than lactic acid, they must be regarded as mischievous, both in and of themselves and as the expression of imperfect gastric chemistry.

Investigation should now be made as to the changes of albumins into peptones,[4] and of the starches into maltose,[5] for, contrary to the belief sometimes held, the latter change goes on quite extensively in the stomach, under physiologic acidity.[6]

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[1] Günzberg's reagent:

Phloroglucin	gr. xxx.
Vanillin	gr. xv.
Absolute alcohol	℥j.

Evaporate to dryness in a capsule over a small flame five drops of this with an equal amount of filtered stomach-contents. The presence of hydrochloric acid is recognized by a brilliant red color.

[2] By titration.

[3] Uffelmann's reagent: Mix one drop of pure carbolic acid with five drops of a dilute solution of neutral ferric chloride. Add sufficient water to render the whole of an amethyst-blue color A mere trace of lactic acid will change this to a light yellow color.

[4] To a few drams of filtered stomach-contents add a little caustic potash, and then a little dilute cupric sulphate. If peptone or propeptone are present, there is formed a distinct purplish-red color; if merely albumin or syntonin is present, a violet-blue color is seen.

[5] If a little Lugol's solution be added to the specimen, it will turn blue if starch is present, but purple if only erythrodextrin is present. If the starchy matter has progressed beyond this in its change into dextrose, the iodine hue remains unchanged. In normal digestion, an hour after a meal, the iodine hue should not be changed.

[6] In the effort to reach simplicity, only a few of the more necessary of the numerous useful tests are here stated. Even these might be omitted, as satisfactory rules for examination are to be found in any one of a number of standard text-books.

Direct examination of the stomach often yields information as to the sensory state of the organ. It explains the cause of the severe gastralgia, burning, weight, and distress, or the boring ache or pain that sometimes precedes or accompanies the actual development of gastric ulcer.

To accomplish all this requires far less time than would be supposed, thanks to the admirable work of the French, and particularly of the German, investigators.

When facts thus only to be elicited in a given case are collected, one may be allowed to speak with some authority as to the nature of the trouble. To know them thoroughly is to acquire the means of recognizing such important conditions as gastric insufficiency, with or without dilatation, structural diseases of the mucosa, and the nature and course of neuroses.

It is to know the defects in gastric secretion and motion, and to find a guide to the relief of the complex and varied affections that the general practitioner too often groups vaguely under the terms "gastric catarrh" and "nervous dyspepsia."

436 FRANKLIN STREET.

THE CAUSES OF OUTBREAKS OF TYPHOID FEVER.

BY JOHN S. BILLINGS, M.D.,
SURGEON U. S. ARMY, WASHINGTON, D. C.

IT is now generally agreed that the immediate or efficient cause of typhoid fever is a bacillus that is contained in the intestinal discharges of those affected with the disease, and that it is transmitted from person to person by being swallowed with water, milk, or food that has been contaminated by such discharges. When one reads the classic accounts of the epidemics at Sansen, Over Darwin, and Plymouth, or of those that have been traced to a milk-supply, it would seem as if in a case of outbreak of a dozen or twenty cases of typhoid in a village, a school, or a health-resort, it should be almost always possible to discover the origin or focus of the infection, and the physician who has had little experience in such investigations is likely to be greatly disappointed with the results of his first attempts to trace the means by which the disease has been communicated.

If he is called from a distance to make the inquiry, several weeks will usually have elapsed since the occurrence of the first cases, and he will very seldom be able to find the specific bacillus in the suspected water-supply or in milk—because if it ever was there it will have passed away long before he obtains samples for analysis, and in most cases he will find it impossible either to discover a common origin for all the cases or to account satisfactorily for the apparent transmission of the disease from one person to another, even if he can prove that they have been together in the same house or in the same room.

Our knowledge of the so-called typhoid-fever or Eberth's bacillus is still very incomplete and unsatisfactory; we are not sure as to whether there is but one specific form or whether there is a group of several forms of microörganisms that may produce the disease, and we know almost nothing as to the circumstances under which such organisms can pass from clothing, earth, woodwork, etc., soiled by discharges containing them, through the air, and produce disease by being inhaled.

Bacteria do not pass into the air from liquids or from moist surfaces unless a spray is formed. If a typhoid stool be exposed in an open vessel in a room for several hours the specific bacteria are not given off into the air, and for this reason it is very difficult to understand how sewer air, or the effluvia from water-closets, in which water is always standing, or from a privy-vault recently cleaned out, should be able to communicate typhoid fever. It is quite true that the typhoid-bacilli can live at least five months in feces or in soil, but air-currents cannot take them up from either of these situations unless the surface is dry and capable of producing dust.

Yet if the many reports of the results of examinations to determine the cause of outbreaks of typhoid which have been published by the inspectors of the Local Government Board of England, or of our State boards of health, be examined, it will be found that in more than half of the cases the disease has been attributed to sewer air or to effluvia from moist foul collections of excreta. I am inclined to think that this explanation is a theoretic one, offered because it has been impossible to trace the true source.

Whether there can be developed from some of the intestinal organisms, such as the bacterium coli communis, in the presence of moist fecal matter, a form capable of producing the specific lesions of typhoid is at present improbable, but by no means impossible. In short, much experimental work remains to be done with this organism or group of organisms.

In an investigation as to the causes of a limited outbreak of typhoid the first thing to be done is to obtain a brief history of each case, including: 1, evidence that the disease was typhoid; 2, the date of the beginning of the sickness; 3, the places where the person was within the limits of the period of incubation, *i. e.*, from eight to twenty-five days. If the majority of the cases first appeared within a period of three or four days, with two or three cases a day or two earlier, and several cases during the following week, it is probable that the cause was a

single pollution of the water-supply or the milk-supply, lasting only a day, or, perhaps in the case of the water-supply only an hour, and that the differences in date of appearance of the disease are due to differences in the incubation-period, produced by variations in either the dose of the poison or individual susceptibility. In such case the date of the temporary pollution will be nine or ten days prior to the middle of the three days in which the greatest number of cases first appeared. If there were but one or two cases at first, then between ten days and two weeks afterward several more, and then, after a similar interval, another group, it would point to conveyance of infection from one of these groups to another, not through the general water-supply or milk-supply, but through soiled clothing, food, etc.

If the cases occurred continuously, day after day, not varying greatly in number each day for a week or more, it would point to some cause that continued to act for that length of time. Having obtained a general idea of the course of the outbreak, probably the next thing to consider is whether there is a general or local water-supply, and what proportion of the people using each supply were affected with the disease. If 5 per cent. or more of those using a given water were affected, the probabilities would be that the water was the means of conveyance of the germs, and special investigation of the water would certainly be necessary. If less than 1 per cent. were affected, the specific contamination of the water would be doubtful; if less than four in the thousand were affected, the cause of the disease would probably not be in the water-supply. Here, however, the immunity produced by an attack of the disease must be taken into account, a very large number of persons in cities that have had a polluted water-supply and a large amount of typhoid for several successive years being thus immune.

Next in importance to the water-supply as a probable cause of the nearly simultaneous appearance of a number of cases of typhoid is the milk-supply, which must be judged preliminarily in the same way, *i. e.*, by the proportion of persons using a particular supply of milk who were taken sick, as compared with those using some other supply. Besides the ordinary drinking-water and the milk, the ice, salads, celery, bottled waters, food contaminated by soiled fingers of a patient or his attendants, or by flies that have had access to the discharges, are possible sources. According to my experience, the soiled clothing and bedding of the sick are among the most frequent means of conveyance of the disease-germs, when a small and irregular series of cases occurs. The limits of this paper do not permit consideration of the methods of examining water-supplies, milk, or food, with reference to the probability of their containing the specific bacillus, and I can only say that such bacilli will be very, very rarely found. The majority of the few identifications of the bacillus that have been reported under such circumstances are doubtful in our present state of knowledge. The evidence of sewage-pollution will usually be furnished by direct inspection of the source of supply and of its surroundings, by chemical analysis, and by the presence in considerable numbers of several different kinds of bacteria.

The methods of disposal of excreta, including the house-drainage, and the possibilities of soil-pollution, whether superficial and capable of giving off infectious dust, or deeper and capable of infecting the water-supply, must, of course, receive careful consideration. Nothing is known as to the time in the incubative stage when the discharges from the bowels begin to contain the infective material, but it is probably within four or five days after the inoculation, so that a man's excreta, and clothing soiled with them, may be dangerous several days before he shows any signs of fever.

My special object in this paper is to call the attention of physicians to the importance of asking questions and taking notes of the probable or possible origin in all cases of typhoid fever so soon as they are satisfied as to the diagnosis, and while the memory of the patient and of his friends is fresh, as such notes will be of much value in subsequent investigations as to cause and the taking of measures to prevent future outbreaks.

A CASE OF LUMBAR NEPHRECTOMY FOR PYO-NEPHROSIS.

BY SCHUYLER C. GRAVES, M.D.,
VISITING SURGEON TO THE U. B. A. HOSPITAL, AND SURGEON TO THE CHILDREN'S HOME, GRAND RAPIDS, MICHIGAN.

THE patient, Mrs. H. B. K., aged fifty-two years, married, and the mother of six children, fell, when eighteen years of age, from a porch, striking her right side just below the ribs. From that time until recently she has been conscious of trouble in that locality, experiencing dragging sensations in the abdomen, and finding it more and more impossible to lie upon her left side, because of cardiac palpitation, which seemed to be due to her injury, or its results.

About three years ago she first noticed a lump in the right side of her abdomen, which was freely movable in all directions. While standing upright the tumor would sink below the level of the umbilicus, producing painful, dragging sensations; but when the recumbent position was assumed it would slip behind the ribs, and thus lie beyond sight and touch. Whenever the patient, however, would attempt lying upon the left side the tumor would press against the stomach, invariably producing palpitation of the heart by reflex impressions conveyed through the fibers of the pneumogastric nerve.

Shortly after the discovery of the tumor by the patient a physician in this city, after a careful examination, declared it to be a pedunculated uterine fibroid, adding that when the patient's "change of life" had been passed the tumor might gradually disappear.

In April of the current year, the patient was taken to the Homeopathic Hospital in Chicago, where she was examined by Dr. R. Ludlam, of the hospital staff. This surgeon at once pronounced the difficulty to be a floating kidney, and recommended an operation for the purpose of anchoring the same. This was consented to, and, early in May, 1892, the operation was done by the said Ludlam.

It seems that a man who could do a nephrorrhaphy would recognize disease, and, if necessary, do a nephrectomy; and, therefore, it is my opinion that at least *active* nephritic disease was not present at the time of Ludlam's operation; but, be that as it may, the woman never recovered from the nephrorrhaphy. She returned to the city, and got up about the house; but the track of the drainage-tube never healed, leaving a sinus, from which pus constantly trickled. She began to lose in flesh, and her friends suggested further surgical interference, which she always declined until I saw her, September 30th last.

During the week just preceding this date her physical deterioration was so marked that she consented to a consultation. I met her physician, Dr. A. J. Patterson, at the bedside on the date named, and noticed the following facts:

A pale, anemic, emaciated woman, of about fifty years, with a dry, hot skin; a dry, coated tongue; pulse 120, and weak, with a temperature of 103° F.

She had been bedridden for about a week, and had experienced a severe rigor the day before my visit. Upon inspection locally, the tumor could be easily made out, elevating, to a decided degree, the abdominal parietes. The lumbar incision, which had been made horizontally, presented several sinuses, from which thick, creamy pus was streaming. Bimanual manipulation showed a greatly enlarged viscus, and elicited quite decided fluctuation.

The urine voided, though of febrile color and considerably deficient in normal twenty-four hours' quantity (about a quart), was clear and free from albumin, and these features, together with the fact that an operation under such circumstances would be secondary in character, thus affording our patient the unquestioned advantages connected with secondary operations in stopping exhaustive drains upon vitality, decided me in recommending a nephrectomy. Consent having been given, the patient was conveyed to the U. B. A. Hospital, and prepared for the operation, which was done on the following day, October 1st.

I quote from my note-book as follows:

"The patient being under chloroform, the lumbar cicatrix was broken up by the finger and the kidney easily located. It was, as expected, the seat of multilocular disease, some cysts containing serum, some gelatiniform fluid, and others pus; the organ was several times larger than normal.

"It was tapped, and the cysts broken up as much as possible by use of the finger; adhesions were detached carefully and the viscus delivered through the wound, which had been extended somewhat beyond the limits of the original incision. A Byford's hysterectomy clamp was placed upon the pedicle and the organ liberated by the scissors.

"It was found that, in spite of carefulness, a rent, 1½ inches long, had been made through the peritoneum, showing the colon and the edge of the liver.

"The abdominal cavity was thoroughly flushed with hot, boiled water; the rent in peritoneum stitched by means of a continuous suture of aseptic catgut, and a counter-opening made in this membrane at its lowest point, through which a short glass drain was inserted into the peritoneal sac. The clamp was left *in situ*, and the greater portion of the lumbar wound closed by deep, interrupted sutures of silk. The drain was held in position by iodoform gauze packing, and antiseptic dressing was applied.

"Shock was pronounced, but hypodermatics of strychnine, atropine, and digitalin, together with hot beef-tea by the mouth, brought on reaction, and the physical condition four hours after the operation was quite fair.

"On October 4th the patient had rallied from the shock, was in good condition, and the prospects for recovery were excellent. The temperature had not reached 101° since the operation, and the pulse was full, fairly strong, and remaining in the neighborhood of 100. The clamp was removed this afternoon, and the wound washed and repacked with iodoform-gauze. No hemorrhage took place. The patient was in good spirits and was well nourished. The bowels and bladder have moved naturally, the quantity and quality of the urine furnishing a good indication as to the excellent condition of the remaining kidney.

"On October 6th the dressings were changed again. Very little pus was present, and there was no sign of peritonitis. The glass drain, practically dry, was removed, the wound irrigated with a mild mercuric chloride solution, and fresh dressings were applied.

"On October 8th the pulse was 80, the temperature 98.6°, and the wound in excellent condition. The appetite was good, and the tongue moist and clean.

"On October 18th quite a bit of slough came away, and on October 21st sloughing continued the entire forenoon.

"On October 22d the urine was found to be ammoniacal, loaded with crystals of the triple phosphates, and a slight trace of albumin was present. The patient was put upon benzoic acid, 10 grains *ter in die*.

"The general condition was excellent on October 28th, and the patient left the hospital for her home, feeling very well."

The urine, under the benzoic acid, gradually cleared up, and on November 10th the patient is walking about her rooms, rapidly regaining her former state of health.

In conclusion, I call attention to three facts of interest in connection with this case: 1st. The presence, in great quantities, of prismatic triple phosphates in the urine about two weeks *after the operation*—this condition, for some reason or other, being the rule in nephrectomy cases. 2d. The use of a suitable pedicle-clamp in cases manifesting pronounced shock, by means of which sufficient time may be saved to turn the scale in favor of life. 3d. The large hopes of success that may be placed upon operations, secondary in character, when not undertaken with the patient *in articulo mortis*.

ORIGINAL LECTURE.

THE ULTIMATE RESULTS OF A PUBEOTOMY—A RUPTURED UTERUS—INJURY TO THE LUMBO-SACRAL PLEXUS IN LABOR—MULTIPLE ABSCESSES IN THE ABDOMINAL CAVITY.

A Clinical Lecture delivered at the Philadelphia Hospital, November 9, 1892.

BY BARTON COOKE HIRST, M.D.,
PROFESSOR OF OBSTETRICS IN THE UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

GENTLEMEN: This woman who enters the clinic room with her baby in her arms, walks, you see, with as firm and confident a step as yours or mine. She was delivered five weeks ago by pubeotomy, after a labor that had lasted forty-eight hours without the engagement of the head in the superior strait. In less than an hour after the operation began, the child was born alive and well. It has, as you see, thriven since. The mother's convalescence was complicated by a phlegmasia that appeared on the twelfth day, but has now subsided. This, I think, was due to the long pressure by the head upon the superior strait and the consequent compression of the bloodvessels in that situation. It is not my purpose to describe at length the history, recent and remote, of the operation, or its technique.[1] This I shall reserve for another time. Suffice it to say that the latter is easy and simple. The operation can be performed by anyone who has a little experience in surgery, and has learned the principles of asepsis. Indeed, I fear that the symphysis pubis will be opened unnecessarily many a time in the future, and while the great present interest in the operation continues, I dare say we shall hear of women thus delivered who have had several children before without assistance. One of the most pleasant features of the renaissance of pubeotomy is the blow it deals craniotomy upon the living child. Up to the present time we have been obliged, at term, to offer to the parents the choice of Cesarean section and craniotomy in cases of contracted pelves in which forceps or version was out of the question. In my experience—a large one in such cases—Cesarean section has been refused without exception, when the true comparison of risks was stated. In the future, with an operation at my command, safer, easier, and usually quicker than craniotomy, I shall never again, I believe, do craniotomy upon a living child. The field of Cesarean section must also be very greatly limited by our knowledge of pubeotomy. For the relative indication, at least, it will be displaced entirely.

Our next patient, who is now brought in on a stretcher, gave me yesterday a most peculiar history. She was delivered by forceps four weeks ago, of a dead infant, after a labor of fourteen hours. She has had a number of children before and all of her previous labors were remarkably short and easy. A day or two after the baby's birth, she noticed water escaping from the vagina, so that she was constantly kept wet. When she got out of bed and walked about, the flow became intermittent, gushing out at frequent intervals and in large quantities. Yesterday, as she walked across the ward, there was a sudden escape of water, making quite a pool on the floor, so that one of the other patients called to the nurse that the bag of waters had ruptured. On hearing this history I thought, of course, of a vesico-vaginal fistula, but the woman assured me that the water never had the odor of urine, which was passed naturally, and this statement was confirmed by the head nurse. Nevertheless, I still suspected the presence of a fistula, but on a superficial examination I failed to find it. I shall now repeat my examination before you, and by care and persistence I trust we shall discover the source of this peculiar discharge. I first make a digital examination of the vagina. I find no trace of a fistula on the anterior wall; there is, however, the cicatrix of an extensive tear in the anterior and left lateral vaginal vault, that I shall test in a moment with the sound. The cervix is not much injured; the womb is in good position, well forward, of normal size, and movable.

I now pass a sound into the bladder, and sweep its tip carefully and slowly over the posterior wall and fundus, looking for an unnatural opening. As I reach the area corresponding with the cicatrix in the vagina, I am doubly careful and follow the point of the sound in the bladder with my finger in the vagina. I discover, however, nothing like an opening. While thus engaged I notice some clear fluid trickling out of the vulva; I smell it on my fingers, but cannot detect a urinous odor. I shall now sound the uterus. I pass the uterine sound repeatedly through a cake of soap until I am sure that it is clean. In my office I should use a 50 per cent. solution of carbolic acid in glycerin. It is a matter of conscience with me to see that this instrument is clean before I employ it, which is not often. Having curved the end quite sharply, I slowly and gently pass the sound into the cervix and then forward into the uterine cavity. It enters two and a half inches. I notice, however, a rough surface near the internal os posteriorly, that needs investigation. I withdraw the sound, cleanse it again, straighten out the tip, and passing it through the cervical canal direct it posteriorly, using no force. It passes through an opening and glides upward to a distance of four inches from the external os. At the same time there is a gush of this clear fluid. We have solved the mystery. This woman's uterus was ruptured in her last labor. The accident escaped the notice of the attending physician. The pelvic peritoneal cavity posteriorly was quickly shut off from the region above by adhesions. An encysted peritonitis or ascites developed.

[1] A description of both may be found in THE MEDICAL NEWS of October 15, 1892.

and hence the discharge. This condition after labor is not unheard of, but it is extremely rare. I shall trust to time to obliterate the cavity and close the opening in the womb. A more active treatment is uncalled for, as the woman has no fever and suffers no pain.[1]

The next patient is also a puerpera. Her baby was born ten days ago. Ever since, she has complained of pain in the right leg. On examination there is excessive tenderness along the course of the sciatic nerve in the thigh, and in the leg down the central part of the calf, and along the outer edge of the tibia in front. When the woman attempted to step from her bed to the stretcher she suffered acutely, and found that the usefulness of the right leg was impaired. You are prepared, of course, to hear the diagnosis: Neuritis from pressure upon the lumbo-sacral plexus in labor. This is a rather rare condition. But when one studies the anatomic disposition of these nerve-trunks in the pelvis, and sees at least the possibility of injurious pressure upon them in prolonged labors; when one knows, besides, that they may be pressed upon by an exudate after labor, or may be actually involved in a septic inflammation, the only wonder is that neuritis as a consequence of parturition is not more frequently seen.

I now make a vaginal examination, directing my attention to the large pelvic nerve-trunks, and I find at the region of the greater sciatic foramen some swelling and exquisite sensitiveness. You see the woman flinch and hear her cry out as I merely touch this point. I have so disturbed her that I really cannot judge whether there is increased sensitiveness as I attempt to follow the course of the lumbo-sacral plexus upward, but the pain is great, I am sure.

One usually expects a history of prolonged labor or unusual presentation and position of the child in a case of this sort, but our patient tells us that her labor lasted but half an hour. Her intelligence is not great, however, and I think she is mistaken, for I find, as I measure her with a pelvimeter, a simple flat pelvis, with an external conjugate of only 17 cm. It is possible, I admit, that damage may be inflicted upon the lumbo-sacral plexus in a very rapid labor. It has followed the rapid extraction of the head in breech-presentations; but this is rare.

Time may do much or perhaps all to relieve this woman. But I shall seek advice as to her treatment from my colleague, Dr. Charles K. Mills, who has taken a special interest in the subject, and has reported several cases of the kind at a later period, when there was paralysis and wasting of the muscles.

The next patient on my list I cannot bring before you for she lies in another hospital (Howard). But I thought her case so unusual and instructive that a brief report of it might interest and perhaps instruct you. She is a young girl of twenty years. She enjoyed good health until two weeks before I saw her, when, on the last day of a menstrual period, she was seized with violent vomiting and purging, with profound prostration and intense pain in the lower abdomen. After four or five days the vomiting and purging ceased, but the pain and general weakness continued. When she entered the dispensary-room of the Howard Hospital, she walked slowly, somewhat bent over, and taking short steps. Her appearance was very bad, and suggested a serious illness. The pulse was rapid, and the temperature over 100°. On abdominal examination, a mass was felt filling the lower abdomen from the symphysis midway to the umbilicus and reaching laterally to the iliac bones. I suspected pregnancy, but the girl denied it; there were no mammary symptoms, no discoloration of the vaginal mucous membrane, the hymen was found intact, and the cervix was not in the least softened. This was all that could be learned from a vaginal examination, for the cervix stood out like a nipple from a dense mass of exudate in all directions. The abdomen was opened two days later. The mass was composed of agglutinated intestines and exudate. Scattered through it were four or five collections of very foul-smelling pus. The largest was not far below the umbilicus and just beneath the omentum. The others were deeper, but I could find no connection between them and the uterine adnexa, which were involved in the general adhesions, but were not distended or otherwise diseased. The pus was evacuated, the abdominal cavity irrigated and drained. For a day or two I thought the girl would die, but she is now well on in her second week, and I think out of danger. I am at a loss to explain these abscesses, unless we accept the explanation offered by the patient herself: She was obliged in her daily work to lean constantly against the edge of a high table, and often complained of abdominal soreness in consequence. To this she attributed her illness, and it is possible that she may have so bruised the intestinal walls as to have caused perhaps ulceration at spots, or at any rate such a reduction of vitality as to permit the "Durchwanderung" of pyogenic microörganisms. There may also have been a tuberculous element in the case, but this I could not demonstrate.

[1] The woman is now well. There has been no discharge for several days.

CLINICAL MEMORANDA.

A CASE OF BROWN-SÉQUARD'S PARALYSIS.

BY LEO NEWMARK, M.D.,
PHYSICIAN TO THE SAN FRANCISCO POLYCLINIC.

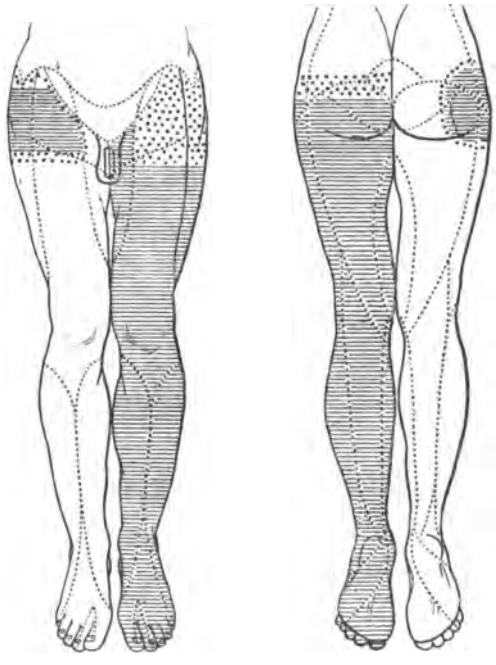
V. D., forty years old, an Italian, presented himself on March 11, 1892, stating that on October 6, 1891, in an encounter with a fellow-countryman, he was knocked down, and then, just as he was in the act of rising, was stabbed in the back. On again attempting to rise, he observed that the right leg was paralyzed. He now received a stab in the chest, and lost consciousness. Sixteen days after the injury he was removed to the French Hospital, and came under the care of Dr. Bazet, who states that at that time both wounds were closed, that the temperature was 102°, and continued so for eight or nine days after admission, and that the right leg was completely paralyzed. The patient further called attention to the insensibility of his left leg to heat and cold; he had noticed in the bath that, although he felt the contact of the water on the left leg, he could not recognize its temperature.

Condition, March 11, 1892. The patient is a powerful, well-nourished man. On his back, 1½ cm. to the right of the eleventh and twelfth dorsal spines, there is a vertical scar 2½ cm. long. There is another scar on the

chest over the seventh rib, about 5 cm. to the right of the anterior median line.

Left Leg. The left leg shows no diminution of motor power. All movements are performed with normal force and precision. Tactile sensation is preserved; very slight touches are perceived and accurately localized. When the skin of the leg is raised in a fold the act is recognized as such and correctly referred to its locality. There is, however, absolute analgesia over a great part of the left lower limb. On the anterior surface, this area of complete analgesia extends from the toes to about the lower limit of the uppermost fourth of the thigh; thence upward the analgesia becomes less marked, the patient distinguishing between the head and the point of a pin, without, however, experiencing a painful sensation when pricked. Sensation improves as we ascend, and is normal at Poupart's ligament. On the inner surface of the whole extremity the analgesia is complete up to the perineum, and on the posterior surface to the upper border of the buttocks; the latter limit is surmounted by an area of modified and gradually diminishing analgesia, like that on the anterior surface of the thigh.

FIG. 1. FIG. 2.



What has been noted of the patient's insensibility to pain is equally true of his inability to distinguish between heat and cold. Wherever analgesia is complete the temperature-sense is likewise abolished, and where the former is incomplete the latter is more or less deficient.

There is no loss of muscular sensibility. The patient is under all circumstances aware of the posture of the limb, is able to recognize with his eyes closed passive changes in the position of its different segments, and to direct all movements with precision.

The patellar tendon-reaction is somewhat exaggerated. There is no ankle-clonus, but an active tendo-Achillis reflex. The plantar reflex is very faint; the cremasteric reflex is absent, and has not been elicited at any of the numerous investigations.

Right Leg. The right leg is almost totally paralyzed, its motility being limited to slight flexion at the hip-joint. The muscles are somewhat flabby and atrophied. The right thigh measures 46 cm. and 40.5 cm. at points corresponding with points at which the left measures 48 cm. and 43 cm. respectively. The greatest circumference of the right leg around the calf, however, is 35.9 cm. as against 35.1 cm. on the left. There being neither edema nor any other palpable cause for this difference, I am constrained to assume a congenital anomaly to explain this disproportion. The muscles contract upon stimulation with both currents, but a little less readily than those of the opposite limb.

There is no hyperesthesia. Sensation is normal from the toes up to a line on the anterior surface corresponding with the level at which it has been noted that the analgesia and thermo-anesthesia begin to diminish on the opposite thigh. On the inner surface of the right thigh, in an area of the same extent as that in which the analgesia was observed to continue upward on the other limb, sensibility is preserved in all its forms. The anesthetic area extends up to Poupart's ligament, and also for some distance on to the posterior surface. In this district, tactile sensibility is much impaired, touches with a brush or the finger not being perceived at all, while the sharp prick of a pin is described as a gentle touch, except near the borders of the area, where the point and head of the pin are distinguished, but without painful sensation. This region is also insensible to heat and cold. The anesthesia does not terminate abruptly, in its whole intensity, but gradually diminishes in degree toward the parts in which sensation is normal.

The muscular sense is intact. Movements communicated to the leg or to the foot are recognized without the aid of vision, and are unerringly imitated with the left limb; for instance, alteration in the posture of the foot by faradization of the peroneal nerve.

The knee-jerk is very much exaggerated, far more so than that on the left side, and there is a slight patellar clonus. Ankle-clonus and the front-tap contraction of Gowers are easily elicited. The plantar reflex is very active, as is also the cremasteric reflex. The patient states that the left leg constantly feels warmer than the right.

On the right side of the *abdomen and back* there is a slight diminution of sensation as compared with the left side; to this the patient had himself called attention before examination. The obtuseness relates to all forms of sensation, and is more pronounced below, gradually diminishing upward, so that above the level of the umbilicus it is hardly perceptible. The abdominal skin-reflexes are absent on both sides.

The *left half of the penis and scrotum* is totally analgesic, and insensible to heat and cold.

The patient's virility is said to be much enfeebled, but not abolished. It is stated that during coition not only voluptuous sensation, but all sensation in the penis is absent. Erection and ejaculation are both less prompt than they had been before the injury. There is also vesical weakness, micturition being delayed, and the jet of urine less forcible than formerly. Of the rectal functions no complaint is made.

On June 22d great improvement in the motor power of the right leg was observed. Movements of flexion

and extension at the hip and knee are executed with considerable strength, and the limb is now used in standing and walking, but the power of movement at the ankle and in the toes is still very deficient. The anesthesia and the condition of the reflexes are unchanged. On this occasion it was noted that perspiration was equal on both sides.

On October 22d (over one year after the injury) a further increase of motor power is evident. The patient walks without support of any kind, but there is some stiffness of the right lower extremity, and the gait is halting. The difference in sensation on the two sides of the trunk has disappeared. According to the patient's assertion, the uro-genitary functions have improved. There is no other change in the man's condition, the anesthesia and the reflexes remaining otherwise as before.

Stab-wounds of the spinal cord have been but rarely observed at a level so low as in the case here reported. Bode[1] collated thirty-six cases, and found that in twenty the cervical, in twelve the upper half of the dorsal, and in only one (recorded by Viguès) the lumbar region of the cord was affected. In the instance related by Viguès[2] the weapon had penetrated between the ninth and tenth dorsal vertebræ, and thus probably injured the cord higher up than in the present case.

The foregoing symptoms are essentially those characteristic of a form of Brown-Séquard's paralysis, *i. e.*, hemi-paraplegia, with crossed anesthesia. The extent of the anesthesia, and especially the anesthetic patch on the right thigh, point chiefly to the second lumbar segment as the locality of the lesion, while the slight anesthesia on the abdominal wall shows that the next higher segment did not wholly escape injury.[3] This corresponds with the indication afforded by the situation of the scar on the back. Further, according to hitherto accepted teaching, it would be justifiable to assume that we have to deal with a lesion of the right half of the cord. Recently, however, doubt has been thrown on Brown-Séquard's interpretation of the complex of symptoms named after him. While Turner's[4] experiments on monkeys confirm the theory that the sensory fibers (at least those of the lower extremities) soon decussate after their entrance into the spinal cord and pass up the opposite side, Mott[5] insists on the absence of crossed anesthesia after hemisection of the dorsal cord in the monkey, and he is supported in his statement by C. D. Marshall, who experimented also on cats, and by Gotch and Horsley, who employed an electric method of examination. Gotch and Horsley,[6] while conceding the existence of pathologic cases of motor paralysis on one side and anesthesia on the other, regard "the clinical experiences as either in no way indicative of the normal relations of the cord to the nerves, or as capable of explanation on the supposition that the lesion has affected at the same time the motor path (lateral column) on one side, and the principal afferent (posterior column) on the opposite side."

The merely clinical account of a case such as I have communicated contributes, of course, nothing new toward an explanation of the discrepancies between the conclusions of various physiologists and neurologists as to the sensory conduction-paths in the spinal cord; but it may possess some value as illustrating anew a complex of symptoms altogether not very frequently met with, and only very rarely observed as the result of a cord-wound at so low a level. Gowers[1] remarks: "It is not until nearly the middle of the dorsal region is reached that a unilateral lesion causes crossed sensory and motor paralysis. In the lowest part of this region and in the upper part of the lumbar enlargement a lesion on one side impairs sensation on the same side as the motor." More recently the same author[2] states: "A lesion on one side of the lumbar enlargement often affects sensation on the same side as motion, because it damages the sensory path before it has crossed."

The restitution of motor function and the persistence of anesthesia are in accord with the usual experience after such injuries in man.[3] Experiments indicate that the return of motor power is not due to a regeneration of the white fibers of the motor tract, but to the transmission of efferent impulses by decussating paths from the opposite side. (Turner, Rossolymo, Mott.)

The dissociation of sensibility is not very rare, tactile sensibility, according to Gowers,[4] being unaffected in one-third of the cases.

Charcot[5] considers these lesions of the cord very dangerous (*graves au premier chef*), and states that the victims die at the latest fifteen days after the injury. A consideration of a number of cases has shown that the prognosis is not so unfavorable.

[1] Berliner klin. Wochenschrift, 1891.

[2] See Charcot: Œuvres complètes, t. i, p. 101.

[3] Starr: American Journ. of the Med. Sci., July, 1892, p. 32.

[4] Brain, winter number, 1891.

[5] Proceedings of the Royal Society, June 18, 1891; British Med. Journ., August 20, 1892. Proceedings of the Physiological Society, January, 1891 (abstract in Neurol. Centralblatt, 1892, No. 5).

[6] Philos. Trans. of the Royal Soc. of London, vol. clxxxii, B., 182, p. 477.

A CASE OF RUPTURED ECTOPIC GESTATION; CELIOTOMY; RECOVERY.

BY JOHN E. WALSH, M.D.,
DENVER, COLORADO.

ON June 29, 1892, I was called to see Mrs. T., thirty-three years old, who began to menstruate at fourteen years, was regular, and enjoyed comparatively good health until her twenty-second year, when she suffered from an attack of pelvic peritonitis, caused by exposure after having fallen into a river. Later, she suffered at times from amenorrhea and dysmenorrhea. About a week before I saw her, after exposure to cold, she complained of feeling chilly and of some slight pains in the abdomen. During the night she had a severe chill, followed by lancinating pains in the abdomen. She also felt faint and dizzy. Whiskey was administered, and hot applications applied to the abdomen. On the next

[1] "On the Antero-lateral Ascending Tract of the Spinal Cord," Lancet, 1886.

[2] A Manual of Diseases of the Nervous System. Second edition, 1892, vol. i, p. 229.

[3] See Köbner: "Spinale Hemiplegie." Deutsche Arch f. klin. Med., xix, 1867, and Turner, loc. cit.

[4] See Manual, p. 230.

[5] Leçons du Mardi, 1888-89, p. 54.

morning Dr. J. R. Walls was sent for, from whom I subsequently learned that she had symptoms of peritonitis. Under the use of morphine, hot applications to the abdomen, and stimulants, she improved until the evening before I saw her, when her symptoms became aggravated.

On examination, I found the patient in a state bordering on collapse, with a temperature of 102.5°, and a pulse of 125. The abdomen was tympanitic and tender on pressure. The bowels were obstinately constipated, and the urine scanty and high-colored. A bimanual examination of the pelvic canal discovered the uterus slightly enlarged, displaced to the left, and firmly fixed. A non-pulsating tumor lay behind and to the right of it. A sound introduced into the cavity of the uterus showed the organ to be empty.

Although the patient had been married more than three years she had never been pregnant. About ten weeks prior to the beginning of her present illness, menstruation ceased; but as she at times suffered from amenorrhea, she paid no attention to this fact. There was no morning sickness; no change in the breasts; no perceptible softening of the uterus; and, so far as I could learn, there had been no expulsion of a decidual membrane. In fact, she had but one symptom of pregnancy, and that was amenorrhea. She did not believe herself pregnant.

My diagnosis was either ruptured ectopic gestation or ruptured pyosalpinx. For ten days she, however, was treated with laxatives, stimulants, and hot turpentine-stupes to the abdomen, with only temporary improvement.

I now advised an operation, to which the husband readily consented. Assisted by Drs. Shollenberger, Hally, Walls, and Godsman, an incision was made in the middle line. The hemorrhage from the abdominal wound was free; this aroused my suspicion as to the bloody nature of the tumor. On incising the peritoneum, over a quart of dark-colored blood gushed out, followed by a portion of the intestines. These were, after some difficulty, replaced and held back by sponges. Passing my hand into the pelvis, a hasty examination soon convinced me that I had a ruptured ectopic gestation to deal with. Having torn some of the placental attachments during my examination, as manifested by alarming hemorrhage, I hastily turned out the product of conception, and packed the sac with iodoform-gauze. This procedure effectually controlled all bleeding.

The abdominal cavity was thoroughly irrigated with hot water, the wound stitched and dressed, and the patient put to bed and surrounded by bottles of hot water. She was now pulseless, but soon rallied under the hypodermatic use of strychnine and brandy. Rectal injections of warm milk and brandy were given every four hours. The temperature rose to 101°. The pulse ranged between 150 and 160 for two days, then slowly declined to normal. On the fifth day the gauze was removed. The cavity was daily irrigated with a warm boric-acid solution and repacked with iodoform-gauze.

At the end of six weeks the sac had completely closed and the wound had healed. The woman is now up and around daily, gaining in flesh and strength.

The diagnosis of extra-uterine pregnancy at an early period is often beset with difficulty. We have no one symptom that is pathognomonic, and it is only by an association of several symptoms at once, or by several appearing in succession, that a diagnosis can be made. One trouble we have to contend with in these cases is that opportunity is seldom afforded for examination before rupture. It cannot be denied, however, that in some cases the symptoms have been so pronounced that a diagnosis was easily made. Such cases have been reported from time to time by competent men, and the accuracy of diagnosis subsequently verified either by operation or autopsy.

It is peculiar that Mr. Tait, whose experience in this line is greater than that of any other man, never had a single case for diagnosis before rupture. It was this unique experience that led him to state that there are no symptoms in extra-uterine pregnancy before rupture has taken place, and to doubt the possibility of an early diagnosis. The value of a diagnosis in the early stages cannot be overestimated, as the treatment before rupture of the sac is of prime importance.

Celiotomy for the removal of an ectopic gestation before rupture is not more difficult than an ordinary ovariotomy, because the bloodvessels can be clamped and ligated at the outset, thus effectually controlling all sources of hemorrhage. On the other hand, to perform an operation after rupture of the sac, when the patient is dying, when the abdomen is full of blood, and when the bleeding vessels are fast pouring out life's forces, is, to say the least, a hazardous undertaking.

In making a diagnosis too much stress should not be laid on any one symptom, unless supplemented by other signs. To suspect the existence of extra-uterine pregnancy is, in itself, a very valuable aid in diagnosis, without which the most experienced is liable to go astray. The patient may believe herself to be pregnant, and there may be present several of the reflex signs of pregnancy. On the other hand, she may scout the idea of pregnancy, as my patient did, and the history of the case may be so misleading that to form a correct estimate of the nature of the disease is impossible.

A woman when developing an extra-uterine fetus generally suffers from bearing-down pains, mostly on one side. When laceration occurs the pain is terrific. She may complain of either amenorrhea, menorrhagia, metrorrhagia, or irregular menstruation. Frequently there is a short period of amenorrhea, followed by irregular menstruation, which may be profuse or scanty. Most cases of extra-uterine pregnancy are preceded by a long term of sterility. The presence of a gradually increasing, pulsating, sensitive tumor in the region of the broad ligament, with the displacement of an enlarged uterus to the opposite side, is a valuable symptom.

The expulsion of decidual membrane is said to be pathognomonic of ectopic gestation, but unfortunately it is not present in all cases.

In regard to the treatment in the earlier months, before rupture has taken place, a great deal has been said and written, by the advocates of both electricity and surgery. If, by destroying the fetus by means of electricity, we could always be sure of having the dead mass absorbed without any sequelæ, such a treatment would be of the greatest value. It must be admitted, however, that electricity is an agent productive of good in certain cases; consequently it should not be entirely ignored.

For instance, all women in whom a diagnosis of ectopic gestation has been made before rupture, will not submit to celiotomy, even though the dangers of their position be made plain. In such cases, then, electricity should be resorted to as a life-saving measure.

When the symptoms of rupture occur the need of a surgeon is imperative. To trust to any other measure but abdominal section endangers the life of a patient. To cut down and control all bleeding is an operation from which even an experienced surgeon may shrink, but in it lies the only hope of saving the woman's life; and if she be not moribund by the time the hemorrhage is arrested, her chances of recovery, in these days of aseptic surgery, are good.

When the rupture occurs in the lower portion of the tube, the contents of the sac falling between the layers of the broad ligament, and thus becoming extra-peritoneal, the patient may recover without interference. The fetus usually becomes encysted and may remain in the sealed sac for a long period without causing any serious disturbance, becoming a lithopedion; but unless completely absorbed, it will sooner or later cause ulceration, and be discharged through the rectum, bladder, vagina, or abdominal wall.

To avoid the sufferings and dangers that such a condition is liable to bring about, it would be better to extirpate the ovisac as soon as the diagnosis is made.

In the later months of pregnancy, when the child is viable, the mother should be placed in a hospital under the watchful care of physicians and skilled nurses, prepared to receive at any moment, during the day or night, the benefit of an immediate operation whenever the symptoms announce the fatal moment has arrived. To allow the woman to remain at home, trusting to a messenger to summon aid at the proper time, is tempting fate. Consequently, when it is impracticable to send a patient to a hospital, the sooner the operation is done the better, as delay brings more danger to the mother than celiotomy.

A CASE OF COMPLETE INVERSION OF THE UTERUS FOLLOWING LABOR.

BY H. E. CUSHING, A.B., M.D.,
CHAMPAIGNE, ILL.

I WAS called by Mrs. W., a primipara, twenty-one years old, at 4 A.M. July 18, 1892. Labor-pains had been recurring since 10 o'clock the previous evening. Finding, upon examination, that the os had not dilated any, I gave a few necessary directions and returned home. Twice during the morning I called and found the labor progressing naturally. At 12.30 P.M. the os was fully dilated, the uterine contractions frequent and severe. About 1.30 P.M. I began the administration of chloroform during the pains, using none during the intervals between the pains, and at no time allowing the patient to become unconscious. At 2 P.M. I ruptured the membranes; not more than four ounces of fluid escaped. At 2.30 P.M. finding my patient becoming exhausted and the head making no advancement, I determined to apply the forceps. Placing my patient crosswise of the bed, I surrendered the chloroform to an assistant, and when the woman was sufficiently anesthetized I applied the forceps, using traction only during the pains, and administering the choloroform only while the contractions occurred. At 3 P.M. the patient was delivered of a healthy child weighing nine pounds. The cord was wound about the child's shoulders once. There was no rupture of the perineum or laceration of the cervix.

After ligating and dividing the cord and handing the child to an attendant, I gave my attention to the mother. Seizing the body of the uterus, with one hand over the abdomen, I applied compression, while making slight traction upon the cord with the other hand. In fifteen minutes, finding no indications of the placenta being expelled, I seized the uterus with both hands and made compression till I felt the uterus contract under my hands, when I again took hold of the cord and found the placenta protruding an inch or more from the vulva. One hand over the abdomen still held the uterus, when suddenly I felt it contract and slip from my grasp, though no traction had been made upon the cord, and immediately the placenta was expelled from the vagina, followed by the inverted uterus, to which the placenta was firmly attached. Glancing at my patient, I found she was deathly pale, pulseless at the wrist, and in a condition of collapse. Ordering a stimulant for her, I despatched a messenger a few blocks for medical assistance, and proceeded at once to peel off the adherent placenta, which readily yielded to my efforts. In the meantime a considerable contraction had occurred just above the internal os, but with the condition of my patient I dared not administer any more of the anesthetic to produce relaxation.

There was continuous oozing of blood from the whole surface of the inverted uterus, but no severe hemorrhage, and I determined to see if it would not relax sufficiently during the attempt to reduce the inversion. I seized the body of the uterus with both hands, and, with my thumbs over the fundus, I applied gentle pressure until it slipped back into the vagina, though the fundus lay nearest the vulva, and I could grasp the body again through the abdominal walls. Gradually introducing my hand into the vagina, I applied pressure with my finger-tips, till at the end of ten minutes I felt the uterus yielding and the inversion reduced. I followed the fundus with my fingers till I found it completely turned back, and there held it with my hand over the abdomen for at least half an hour until contractions occurred, rendering it firm and hard. With the use of stimulants the patient soon began to rally.

The physician for whom I sent arrived too late to render assistance. After the uterus was well contracted I used a hot solution of mercuric chloride, 1 : 3000, and thoroughly irrigated the uterus and vagina. This aided the patient much in rallying, and the heat was grateful and refreshing. Fresh clothing was put upon the bed and patient; a wide bandage with a compress over the uterus was applied, and one-drop doses of normal liquid ergot were administered hourly. There was an inability on the part of the patient to urinate during the first and second days, and following this for two days the urine would pass involuntarily during sleep. Otherwise the recovery was uninterrupted, the temperature and pulse at no time being above normal.

The cause of the inversion I cannot explain. Had I used chloroform to complete anesthesia I should have considered that this might have produced too great a relaxation of the uterus. But at no time was there suffi-

cient anesthesia to more than dull the pain or prevent the patient from understanding what I said to her. The cord was of ordinary length, and traction was not produced upon the placenta when the child was expelled. I used more than the usual precaution in making traction upon the cord, as only a week previously I had torn a rotten cord from its attachment, and was careful that the accident should not occur again. The placenta was under rather than above the average size, and the patient made no effort to expel it.

On September 9 I made an examination of my patient and found the cervix uteri without laceration and with no rupture of the perineum.

CASE ILLUSTRATIVE OF THE CONSTITUTIONAL AND HEREDITARY ORIGIN OF VARICOCELE.

BY G. FRANK LYDSTON, M.D.,
OF CHICAGO.

A MAN, thirty-nine years old, of medium height, spare, and rather delicate, was referred to me for counsel regarding varicocele. I found that he had a double varicocele, the left side, as is usual in such cases, being much the larger of the two, although the right was also quite large. The veins of the entire abdomen were greatly enlarged and markedly varicose, the upper part of the abdomen presenting the peculiar arborescent appearance so frequently seen in cirrhosis of the liver. The veins of both extremities presented varices as severe and extensive as almost any that I have ever seen. Both testes were atrophied, the right especially so. On examination of the rectum I found the patient to be suffering from severe hemorrhoids. The family history of the patient is very interesting, he himself recognizing its important bearing upon his condition. His mother, whom he stated he favored very noticeably, had always been delicate and suffered from severe varices of the extremities. No other particulars could be obtained regarding her history, save that she died of what was pronounced to be "pernicious anemia," a fact that in itself is quite suggestive. One of the patient's brothers is affected by what, from his description, I infer to be several nevi located upon the inner aspect of one thigh. These have developed within the past few years.

This case has certainly a very important bearing upon the question of the hereditary and constitutional character of varicocele and its congeners. In my recently published monograph upon varicocele, I have strongly insisted upon the dependence of varicocele upon perturbation of the structure of the general venous system. Mr. Bennett, in his excellent little book upon the subject, has also dwelt upon the same point. It would hardly be practicable to expatiate upon this case at length, especially as I have already expressed my views *in extenso*. The case has a very practical bearing upon the subject of diseases of the veins. The possibility of the correlation of hemorrhoids and varicocele has been vigorously disputed by such high authorities as Mono and Terrillon, but I have long been convinced of their association in certain cases as a consequence of a generalized perturbation of the structure and function of the venous system. On examination, the liver was found normal. There was a slight mitral systolic murmur, but no changes in the heart that would explain the extensive varices.

A CASE OF BILIARY FISTULA IN THE NEWBORN.

BY J. HERBERT DAREY, A.M., M.D.,
OF GRANGER, MINN.

ON August 31, 1892, I was called to attend Mrs. A. in labor. A rather small-sized boy was delivered after an easy and normal labor. The child was the second. The placenta came away intact. About ten days afterward I was sent for to see the child, as something was wrong with its navel. On my arrival I was told that the nurse had seen matter that looked like feces welling up from the unhealed stump of the umbilicus. On examination the navel was protuberant, and had not yet cicatrized. The stump projected about three-eighths of an inch above the surface of the skin, and had some flabby granulations on it; but there was nothing else visible. I thought that some pus might have been present that had deceived the nurse. The raw stump was touched with a crystal of copper sulphate to check the exuberant granulations. The father saw the child the next time it was dressed, and stoutly maintained that he saw feces emanating from the navel when the child cried or stretched itself. He was so positive that I looked again, and saw on the binder a yellow stain that looked like that which was on the diapers, and a perfectly odorless yellow fluid coming out of the navel. A minute opening was now detected in the stump, into which a probe passed upward and outward to the right for a distance of about three inches, when it encountered something solid, which must have been the liver. The parents were much alarmed, as they thought that there was no hope for the child with the intestinal contents coming out of the navel. I had some trouble in disabusing them of this idea. A probe, armed with silver nitrate, was passed deeply to the bottom of the fistula, to set up adhesive inflammation. This was done daily for ten days, the probe being introduced less and less deeply each day; when the fistula closed up completely. The child was in good health all the time, and, though small, is at present growing nicely. I thought that the fistula must be due to an unobliterated umbilical vein; but just how the bile got into it is somewhat mysterious. Was there a communication between the gall-bladder, or ductus communis, or cystic duct, and the vein; or did the bile come from the biliary ducts in the liver itself and empty into the vein in some way?

MEDICAL PROGRESS.

An Epidemic of Diarrhea among Children Induced by the Bacterium Coli Commune.—ROSSI-DORIA (*Centralblatt f. Bakteriologie u. Parasitenkunde*, 1892, No. 14, p. 458) has reported the occurrence of an epidemic of diarrhea among a number of children in the ward of a hospital, in the course of which twenty died. In the stools and in sections of the various organs the bacterium coli commune was almost exclusively found. The children were mostly from ten to twenty months old. The essential and constant symptom was the diarrhea. There were perhaps twenty stools a day; the feces were offensive in odor, greenish, slightly flocculent, mixed with viscid mucus and occasionally blood-streaked. Their

reaction was almost always neutral or feebly acid. In the first stage of the disease there was no fever; on the contrary, the condition was one of collapse, with hypothermia. The tongue was dry, the skin wrinkled, the eyes deep, the fontanel depressed, the abdomen scaphoid. In the second stage the diarrhea subsided; the spleen was tender to touch; a febrile reaction appeared resembling that of enteric fever. The children that reached this stage usually died on the fourth or fifth day after the appearance of the febrile symptoms. In the severe cases the most common complication was broncho-pneumonia in the posterior portion of the lungs. Post-mortem, the mucous membrane of the first portion of the bowel was normal. That of the last portion of the small intestine and throughout the large intestine was swollen, here and there hyperemic, and in a few places, though not in all cases, marked by punctate hemorrhages. Peyer's patches were prominent, the solitary follicles thickened, but never larger than a millet-seed, and frequently surrounded by a red areola, and sometimes ulcerated. The mesenteric glands were enlarged in all cases, in some greatly so. The liver appeared yellowish, as if fatty. The spleen was enlarged, soft, and of a slate color. The kidneys appeared normal. The peri-bronchial glands were enlarged in almost all of the cases. The heart presented no lesion. The post-mortem examination was usually made twelve hours after death, the body having been kept in a cool place. The organisms found in the intestinal contents, in the tissues, and on culture closely resembled typhoid-bacilli. The following differences were, however, observed: the bacterium coli is smaller and thicker than the typhoid-bacillus. Although the colon-bacillus becomes motile at a temperature of 100.4°, it is not so at ordinary temperatures, as is the typhoid-bacillus. Although in potato-cultures the typhoid-bacillus gives rise to a yellowish-brown formation, the colon-bacillus produces the same result much more rapidly and with much more distinctness. The colon-bacillus, in contradistinction to the typhoid-bacillus, gives rise on sugar-agar to the copious production of gas.

Red Pus.—FERCHMIN (*Vratch*, 1892, Nos. 25 and 26) has reported fourteen cases in which red pus was observed. The condition was almost always found in recent wounds, at the first dressing; in only one case two weeks after the operation. The pus was not apparent on the surface of the wound, but in the layers of the dressing next to the wound. The color was generally bright-red. The phenomenon is readily distinguishable from hemorrhage. The color of red pus is unchanged by drying, while that of blood becomes dirty-brown. The cause of the red pus was found to be a bacillus one-third as long as the diameter of a red blood-corpuscle, and about as thick as the pneumonia-coccus of Friedländer. The organism is colorless, but stains readily with various colors and by Gram's method. It grows best at the temperature of the body, and equally well in diffuse daylight and in darkness. In direct sunlight the color fades. Smear-cultures on blood-serum present the appearance of a red streak. Other culture-media are rendered turbid. The red pigment is soluble in alcohol, insoluble in water, benzine, ether, and chloroform. Mice proved refractory to the organism. In rabbits subcutaneous inoculation was followed by fever, loss of appetite, diarrhea, and death. In dogs injections beneath the skin and into the abdominal cavity were followed by transient fever, without local reaction. Clinically the presence of red pus was not found to influence the course of the case.—*Centralblatt f. Chirurgie*, 1892, No. 41, p. 825.

THERAPEUTIC NOTES.

For Cholera.—As in the course of an attack of cholera the secreting epithelium of the kidney undergoes degeneration, ZIPPEL (*Deutsche medicin. Wochenschr.*, 1892, No. 42, p. 956) proposes in treatment the induction of diaphoresis in conjunction with venous infusion. As soon, after venous infusion has been instituted, as the radial pulse can be felt, the pressure under which the saline solution is propelled is diminished by lowering the receptacle in which the fluid is contained. The canula, protected with an antiseptic covering, is, however, permitted to remain in connection with the vein. By means of barrel-hoops, blankets, and a spirit-lamp, the patient is now given a hot-air bath; and soon copious diaphoresis sets in, with corresponding improvement. The method of treatment has thus far been employed in but a limited number of cases, but in these it has proved eminently satisfactory.

For Bromidrosis.—

℞.—Naphthol . . . . . gr. xxiv.
Glycerin . . . . . ♏ xlviij.
Alcohol . . . . . f ʒj.—M.

S.—As a wash for the feet, night and morning; followed by—

℞.—Powdered naphthol . . . gr. viij.
Powdered starch . . . ʒjss.—M.

KAPOSI, *Correspondenzblatt f. Schw. Aerzte*, No. 20.

For Eczema of the Vulva.—

℞.—Potassii bicarbonat. . . . ʒj.
Sodii bicarbonat. . . . ʒij.
Glycerin. (neutral) . . . f ʒjss.
Tinct. opii . . . . . f ʒij.
Aquæ destil. . . . . f ʒviij.—M.

S.—Warm and apply morning and night; then dust the parts with a mixture of finely powdered camphor, 1 part, and finely powdered starch, 49 parts.

LUSCH, *L'Union Méd.*, No. 110, 1892.

For Frost-bite.—

℞.—Ol. lavandulæ, Acid. carbolic. } . . . āā f ʒss.
Olei olivæ . . . . . f ʒv.
Unguent. plumbi, Lanolini } . . āā ʒx.—M.

Ft. ung. S.—Apply topically. LASSAR.

For Snake-bite.—It is recommended that when, in case of snake-bite, absorption of the virus has taken place and constitutional symptoms are already present, the bitten person be placed in a hot bath, subsequently in a hot pack and covered with blankets, to induce copious diaphoresis; a subsequent cold sponging will protect from the dangers of exposure afterward.—*Science.*

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SATURDAY, NOVEMBER 26, 1892.

JOURNALOPATHY.

THERE is a peculiar and noteworthy type of journalistic disease very prevalent at the present time among us that may be defined as an endemic, infectious affection confined in geographic distribution to the United States. In some respects it seems of a parasitic or fungoid origin, whilst in others it seems to be a professional or occupational neurotic disease, being limited almost entirely to the class HEALERS and their hangers-on. Although a periodic affection, it is strangely enough absolutely without period ("full-stop"), and also without periodicity, being very chronic and steadily ingravescent.

The chief subjective symptom is pain confined to two circumscribed parts of the body—that beneath the bank-book pocket, and that below the scalp in the locality where the phrenologists say is located the organ of *amour propre*. The chief objective symptom is the appearance of an extravagant number of so-called medical journals filled with advertisements, reading notices, uncredited copyings from exchanges, personal notices, portraits of famous living physicians, many abstracts, a few original unpaid contributions (and these mostly the echoings of other voices), and articles on miraculous proprietary pharmaceutic preparations by Drs. Hardpressed & Co. As to pathology, but few cases have been "posted"—alas!—and in these the findings were very meager and unsatisfactory. Before death a sort of simple "neurotic edema" of the two parts mentioned was the most decided and uniform morbid tissue change; but as this was not present in the dead subject, it would appear that the disease is simply a functional neurosis.

From the most reliable data at our command we estimate that there are published in the United Kingdom about thirty-six medical journals, excluding the annuals, which may hardly pass as serials. In the United States there are something over two hundred such periodicals.

In proportion to population, therefore, we have, roughly, between three and four times as many medical journals as England. But even this enormous disproportion is heightened by the fact that England supplies her colonies and the English-speaking world with much of their literature of this kind. What is the reason and significance of this fact?

The reason for the fact is that with us the great majority of journals exist for the benefit of advertiser, publisher, and editor, and if at all, only indirectly for the advancement of medical science and the benefit of the medical profession.

The significance of the fact is that the vast influence for good that might result from the concentration of interest and power into a few authoritative and useful journals is frittered and dissipated in smoke by the pernicious multiplication of hundreds of useless and wasteful ones. There is only about so much money that may be devoted to medical serial literature by the members of the profession; if this is largely divided among second, third, or tenth-rate periodicals, it cannot be utilized in the encouragement of the first-rate ones. The more subscribers a good journal has the greater the amount and the higher the quality will be the reading-matter given. We positively have no jealousy or ill-will whatever toward this class of journals; we only wish to emphasize an incontrovertible fact. No one can fully estimate or truthfully deny the tremendously good influence exercised by such periodicals as the two powerful mouth-pieces of the English medical profession.

Yet another aspect deserves notice. Good medical writing can only be done by educated, intelligent minds, well equipped with knowledge. When vanity is the motive of writing, the writing will assuredly be

as devoid of value as all vanity-produced things proverbially are. Why should the terrible tax be levied upon medical men of giving the literary results of their labors to the world gratuitously? It costs life-force and time to write well and to the reader's profit. Would not the quality be better if writers for medical journals were paid for their services just as they are paid by lay periodicals? What may be expected of the unpaid labors of editors and contributors? Is that report or writing most trustworthy that is born of motives of self-magnification and the desire to attract patients and consultations? We speak subject to possible correction, but we do not think that there is more than one medical weekly in the United States that pays cash for every contribution to its columns. There is certainly but one that frankly advertises the fact in every current number it issues. Even in this case only a beginning is made toward better things, and when medical literary ability, both editorial and contributional, is adequately compensated, that ability will spring into existence fitted to help on medical progress with noble strides.

What hinders such payment? Simply the shameful multiplicity of useless journals.

Upon every physician it should be urged: You wrong yourself, your patient, and your profession by encouraging an outrageous waste of medical force by the reckless increase of petty and uncalled-for periodicals. Select of the few best the ones you please, but do not let "local pride" influence you to throw away money and time. You have no moral right to encourage periodicals controlled by advertisers, or those wherein money-making, self-seeking, and east-wind are more conspicuous than the desire to further honest and progressive medical science!

SURGICAL INTERFERENCE IN PERFORATED TYPHOID ULCER.

PROBABLY the most serious complication that can occur in the course of typhoid fever is intestinal perforation. Fortunately, it is not a common one—not more than from 5 to 7 per cent. of the total mortality die thus in large series of reported cases. Yet in those cases in which this accident does take place the question of treatment must always be imperative to the conscientious attendant, and demands immediate solution when the occasion arises.

Until 1886 useless palliatives were alone considered, when PROF. JAMES C. WILSON[1] made emph[illegible] query whether operative interference would be justifiable, and pleaded that this method be given trial in those cases which previously had been simply abandoned to their almost inevitable fate. An approbatory editorial appeared shortly afterward in THE MEDICAL NEWS, and in 1887 several contributions to the literature of the subject were published,[2] and two cases of operation for perforated typhoid ulcer were reported—one by LÜCKE, of Strassburg, and another by T. G. MORTON, of Philadelphia. Later, VOLKMANN reported one, and BONTECOU, of Troy, two additional cases. Of this total of five cases, four died within a few hours, although operated upon almost immediately subsequent to the perforation. The fifth, in which perforation occurred on the fortieth day of the disease and the twentieth of a relapse, likewise speedily perished. One additional case, the reference to which has unfortunately been mislaid, has since been placed on record. Here perforation took place late in convalescence, operation was promptly done, and the patient recovered.

But two text-books refer to the possibility of surgical interference in this form of perforative peritonitis. GREIG SMITH[3] says that "to perform abdominal section on most cases of perforating typhoid ulcer would be little better than performing a post-mortem examination on the operating-table. Perforation frequently takes place during convalescence; a few of these cases may permit operation. . . . The operation undoubtedly has a future before it; but it must be undertaken only with extreme caution and under the most favorable conditions." In OSLER'S opinion,[4] "If perforation has occurred in the second or third week, it would be useless, under the circumstances, to attempt to stitch a slit in the intestine; if, on the other hand, it occurs during convalescence, it is only right to give the patient a chance, and the operation should be performed."

It would appear, then, that the prognosis, either with or without operation, is almost uniformly fatal in perforations arising before the commencement of defervescence of the disease; while, probably, with operation, an increasingly favorable prognostication may be given as the complication occurs at later and

[1] Phila. Med. Times, Dec. 11, 1886.

[2] Deutsche Zeitschr. für Chirurg., 1886-87, xxv, 1-4; THE MEDICAL NEWS, Nov. 26, 1887; ibid., Dec. 24, 1887.

[3] Abdominal Surgery, 3d edition.

[4] Practice of Medicine, 1892.

later stages. Our own judgment is in favor of operation at any period if the lesion can be positively diagnosticated; for death is inevitable without surgical interference, and the operation has not yet been performed in a sufficient number of cases for us to be positive that in the first two or three weeks there are no circumstances under which an exceptional case might not be saved.

Diagnosis is therefore the supreme question. If this cannot be positively established in the early periods of the disease, operation should never be considered; for scarcely any horror could equal that of opening the abdomen in the early or middle periods of typhoid fever and finding that one of the many misleading symptoms then often present had caused a needless and probably fatal operation to be performed. At later periods, when operation, *per se*, would be less lethal, more risks might be taken if the diagnosis is not absolute. The one successful result on record was obtained late in convalescence.

Regarding the operation itself, the indications are simple: median incision; search for lesions from the cecum upward along the ileum, then in the appendix (a frequent site of typhoid perforation), and finally downward along the colon; suture of perforations, without trimming the edges, with Lembert sutures, and turning into the bowel-lumen of sites of impending necrosis or perforation by the same means; copious irrigation of the entire abdomen with hot (110°) water; and, finally, introducing a drain-tube to the base of the pelvic cavity, and suture of the parietal wound. Extensive perforations, actual or impending, would call for the attempted formation of an artificial anus.

PHILADELPHIA AS A CENTER OF MEDICAL EDUCATION.

THE statistical details epitomized in the following table were kindly furnished by the Deans of the respective institutions named.

If to these were added the pupils of private teachers, of hospitals, and of sectarian schools, the present number of medical students in Philadelphia would doubtless run above two thousand; and if the matriculates in dentistry were also included the total would be much more increased.

That the city should have some pride in the history and influence of her famous medical schools, is evident, even from the plebeian standpoint of finance. If each of these 2000 medical students spends here on the average no more than, say, $600 a year, it follows that the body adds some $1,200,000 per annum to the general civic prosperity. The grand total contributed in this way by all the students of the past is beyond any accurate estimation.

But it, of course, arouses a far more honorable pride both in citizen and physician to think of the influence of her 21,474 graduates who have gained here and have carried to the world a knowledge and skill of infinite benefit and service to mankind.

NOVEMBER 1, 1892.

INSTITUTION.	MATRICULATES IN ATTENDANCE.					Number of degrees of M.D. conferred.
	1st year.	2d year.	3d year; special etc.	Post-graduates.	Total.	
University of Pennsylvania (Medical Department.)	316	263	243	12	834	10,753
Jefferson Medical College...	181	165	227	30	603	9,899
Woman's Medical College...	60	70	63	2	195	643
Medico-Chirurgical College	49	42	50	1	142	179
Total.....	606	540	583	45	1774	21,474

SELECTION.

A SILENT REVOLUTION.

AN almost silent revolution, deeply affecting the public welfare, is going on in the long prevalent practice of the open sale of proprietary, or, as they are falsely called, patent medicines containing poison, without their being labelled poison, or without the provision of the law in respect to the sale of poison being complied with. There is undoubtedly a great deal in a name. To call a secret nostrum a patent medicine is like calling a jay a peacock; it is and always has been a complete misnomer—*lucus a non lucendo*. The whole class of pills, potions, liniments, and lozenges thus cleverly miscalled were and are not either in fact or in law patent; their composition is not specified—nay, their very existence, and the profits derived from them, commonly depend upon their ingredients, and the proportions of such ingredients, being kept secret; thus facilitating mystery and affording the opportunity to the proprietors of pushing the sale of them by whatever flowery statements and promises seem good to them. Needless to say that free and lucrative use has been made of the opportunity for imaginative magnificence in promises based upon the mysterious properties of the unknown ingredients of medicines clothed with the borrowed garb of non-existent patents. In the report on twenty-one of these improperly called "patent medicines" laid before the Treasury on November 28, 1891, by Mr. Ernest Hart, as Chairman of the Parliamentary Bills Committee of the British Medical Association, it was pointed out that not only were these medicines in no way patented or protected, but that a

considerable number of them contained poisons such as opium, belladonna, strychnine, etc., and that, in virtue of the false assumption as to the word patent, they were being sold without note or warning by unlicensed persons, without a label "poison," and in open and direct contravention of the provisions laid down for the safety of the public under the Pharmacy Act. The Public Prosecutor, to whom great thanks are due, took vigorous action as soon as he had independently satisfied himself of the accuracy of the facts stated, and the result of subsequent communications thereon by Mr. Ernest Hart to the Chairman of the Council of the Pharmaceutical Society has been that the Council of that Society have been induced to put in force the long dormant and neglected powers which the law gives them, and that they are now carrying out the duty which it imposes on them of preventing the sale of such poisons in secret (miscalled patent) medicines, except with the legal safeguards of being duly labelled "poison," and sold under the restrictions therein involved. . . . The revolution which is in progress is silent; it will be necessary in the public interest that it be continuous and complete; and that individual submissions are the evidence of a general obedience to the law, so that secret medicines containing poison—a very numerous class—and peculiarly dangerous to infant life, shall no longer be, as they have been in so many instances for a long series of years, sold without warning that they contain poison, and under advertisements which might easily lead to quite the opposite conclusion.—*British Medical Journal*, No. 1662, p. 1018.

CORRESPONDENCE.

ACCIDENTS IN INTUBATION.

To the Editor of THE MEDICAL NEWS,

SIR: Permit me, through your columns, to ask Dr. Lovett to explain to the profession concerning the "accidents" that occurred in 392 intubations reported by him from the Boston City Hospital (see "Intubation *versus* Tracheotomy," THE MEDICAL NEWS, August 27, 1892).

1. "Twenty-one times intubation was attempted and immediate tracheotomy was necessitated by the cessation of breathing." That means, in every eighteenth or nineteenth case the intubationist of Boston City Hospital had this experience: A persistent effort to place the tube in the larynx of a suffocating child failed; the child was choked, breathing ceased, and plunge-tracheotomy was necessitated. Dr. Lovett is asked to explain concerning this surprising statement for the instruction of the practising physicians of this country, who are obliged to read upon the lines; experts may read intelligently between the lines.

Who was this operator, or were there twenty-one operators, and each case the beginning experiment of each? I am informed that the service in the special diphtheria wards of that hospital is rotating, each physician from the general staff being set aside to attend it for a month. Is it so?

The time over which these statistics extends is five years. How many new men, in that time, were broken in for intubation? One every month for five years? What was their practice in preparation for this serious and not easy operation?

Dr. Lovett's paper, so carefully prepared, and bearing the stamp of candor, has had great weight in the community. Here is his conclusion: "In general I would be glad to advocate the performance of tracheotomy instead of intubation . . . . except in cases of children under two years." This conclusion is based upon statistics, and the statistics are made up from operations in which 21 in 392 were failures. It is the belief of the writer, based upon the experience of all work done at the New York Foundling Asylum since the perfection of the invention, and by all the numerous operators educated in that institution, that there need be no such thing as failure of the operation in the hands of those that have had plenty of practice on the cadaver.

There is no such thing as accident attending the operation itself if the operator is expert.

Two of this ill-fated list—two of twenty-one whose throats were first plugged, then cut—two recovered.

2. "In three cases death occurred during the attempt to insert the tube." They were choked to death—by an expert? Never! If by a beginner—let the Boston City Hospital name the act.

3. "Two children died during choking spells." This I take to mean, not at the time of operation, but later. If so, here has been mentioned the *one danger* of intubation that an expert need fear. A tube, however carefully placed to-day, may to-morrow become plugged at its lower end from loosened folds of pseudo-membrane. Concerning *the one danger of intubation*, Dr. Lovett commits himself to the following statement: "Intubation-tubes become stopped with membrane often, but so do tracheotomy-tubes. These are *comparatively trifling matters*" (italics ours). Will Dr. Lovett inform those interested in intubation how much personal contact or supervision he had of these twenty-one cases?

4. "In two, insertion of the tube was followed by convulsions." This being interpreted means prolonged manipulation in the wide, open mouth of a worn-out croup-patient, cyanosis and asphyxia, carbonic-acid poisoning and convulsions. House physicians of the Foundling Asylum, by practice on the cadver, are able to insert the tube in five seconds. Any patient can bear that, with the prospect of prompt subsequent relief.

5. "In two cases the tube was drawn into a bronchus, and death, of course, resulted." Here, indeed, is climax! An intubation-tube in the bronchus! Was this the work of an expert? Not in all the days of caretaking investigation of the first experimental work has the New York Foundling Hospital been able to furnish or subsequently to rear and educate a man who could do that. In the deadhouse I have repeatedly inserted a small tube several sizes too small for the age of the child, cut off the trachea at the lower end, and by means of a strong forceps endeavored to drag down the tube. What was the result? The tube slipped below the vocal cords on the first tug. Then it caught firmly—where? On the cricoid ring. It will be remembered that Dr. O'Dwyer has stated that the narrowest portion of the respiratory ways is within the caliber of the cricoid. Through this the tubes experimented with could not be pulled even when the caliber of the ring was not dimin-

ished by swelling of the mucous membrane. Now, how did the operator or operators manage to punch the head of the tube through the cricoid ring? I can conceive of but one way, and the answer is to be found in Dr. Hunter McKenzie's report of cases (*Edinb. Med. Journ.*, February, 1892). He says that after death the tube was found in the lower part of the trachea, and further: "The tube was forced into the trachea by unsuccessful attempts on the part of unskilled hands to use the extractor after death." In short, they practised on the cadaver, tore up the cricoid ring, and pushed the tube through.

6. This is not enough. Listen to the anti-climax: "In two the *introducer broke*." This might pass without comment did all remember what Dr. O'Dwyer has been saying since the first use of the instruments in private practice. Beside practice on the cadaver, he urged a gentle procedure like that of the skilled surgeon in passing the urethral sound into the male bladder, gently, with educated touch, avoiding false passages made by others, making no new ones. I have heard no one explain his failure to enter the bladder by saying the sound broke, or that his foot slipped. I cannot believe that the cricoid ring of the Boston child is different from that of the New York child. Certain it is that the Boston child makes a fair showing in a wrestling bout—in breaking two instruments.

Dr. Lovett ingenuously relates this tale of practice fraught with such woe to twenty-one small children confined to Boston City Hospital, and adds: "This list of accidents, all necessitating tracheotomy, it seems to me, is a serious commentary upon the operation of intubation." This gruesome jest can be appreciated only by the experienced intubationist. Poor operators and poor tools have been the curse of intubation. Patiently, over and over, from the very first, Dr. O'Dwyer has repeated: "*The operation is not an easy one; it is a mistake to consider it so. It requires practice on the cadaver, and plenty of it.*" To the physician or surgeon so situated as not to be able to practise on the cadaver, the advice should be given, "Perform tracheotomy; you can see what you are doing; it is, in the beginner's hand, the safer operation."—(O'Dwyer.) Intubation skill is not born in one, neither will personal conceit take the place of practice. Because a man is a surgeon is no reason why he can place an intubation-tube gently and quickly in the larynx of a gasping child. The time is sure to come when the skilled operator will be invited to intubate the patients of the general practitioner, and that before the larynx has been mutilated by the previous futile attempts.

Mr. Editor, the paper of Dr. Lovett was written in all candor; the conclusions rest well upon the reported statistics. But they must not be accepted into the literature of to-day's busy rush till these twenty-one tragedies-in-two-acts are explained. They are the heaviest tragedy in intubation-literature; but from the wide-eyed ingenuousness displayed in the report, we may well believe the doctor had had no appreciation of the fact.

Finally, judging from all the accumulated experience of those at any time connected with the home of the invention, from the experience of the inventor, from that of the numerous house-physicians, during their service or since, and from post-mortem studies, I fully believe that all of those accidents save two (numbered three in the list), were inexcusable—especially in a hospital.

W. P. NORTHRUP, M.D.

57 E. SEVENTY-NINTH ST., NEW YORK.

November 15, 1892.

NEWS ITEM.

The Samuel D. Gross Prize of the Philadelphia Academy of Surgery.—The first quinquennial prize of one thousand dollars under the will of the late Samuel D. Gross, M.D., will be awarded in 1893.

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens."

The successful competitor shall publish his essay in book-form, and deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut St., Philadelphia, before June 1, 1893.

Each essay must be distinguished by a motto, and accompanied by a sealed envelop bearing the same motto, and containing the name and address of the writer. No envelop will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

BOOKS AND PAMPHLETS RECEIVED.

Treatment of Sacculated Aortic Aneurism by Electrolysis through Introduced Wire. Report of a Case. By D. D. Stewart, M.D. Reprint, 1892.

Proceedings of the United States Naval Institute. Volume XVIII. Published quarterly by the Institute.

The Treatment of Leg Ulcers. By Thomas S. K. Morton, M.D. Reprint, 1892.

Radical Treatment of Hydrocele. By Thomas S. K. Morton, M.D. Reprint, 1892.

To Define the Crime of Murder, Provide Penalty Therefor, and to Abolish the Penalty of Death. Speech by Gen. Newton Martin Curtis, of New York, in the House of Representatives, June 9, 1892.

A Manual of Medical Jurisprudence and Toxicology. By Henry C. Chapman, M.D. Philadelphia: W. B. Saunders, 1892.

Safety in Cholera Times. Homeopathic Treatment. Philadelphia: Boericke & Tafel, 1892.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will upon publication be liberally paid for, or 250 reprints will be furnished instead of payment, provided that the request for reprints be noted by the author at the top of the manuscript. When necessary to elucidate the text, illustrations will be provided without cost to the author.

Address the Editor: GEO. M. GOULD, M.D.,
1004 WALNUT STREET,
PHILADELPHIA.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, DECEMBER 3, 1892. NO. 23.

ORIGINAL ARTICLES.

CLINICAL CONTRIBUTIONS TO THE SUBJECT OF BRAIN-SURGERY.

BY ROSWELL PARK, A.M., M.D.,
PROFESSOR OF SURGERY IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF BUFFALO; SURGEON TO THE BUFFALO GENERAL HOSPITAL.

IT is my intention in the following paper to report and comment upon certain personal experiences in the rather new field of intra-cranial surgery, illuminated, as it has been, by the light of recent researches, rather than to endeavor to present any new aspects of the subject. After one has done a certain amount of this kind of work, his experience and deductions become of value to others, and the sole purpose of the present communication is to make it as helpful to others as possible. I do not intend to touch upon all possible phases of the subject, but rather upon some of the more common cases of this general character; neither is this intended to be a comprehensive or complete personal record. The instances reported are simply some that have been selected from a much larger number because they appear to me to be of interest. Hence the frequent use of the personal pronoun.

INTRA-CRANIAL ABSCESS.

As is well known, abscess of the brain must be the result either of direct infection or of embolic disturbance. It is sometimes easy to trace the latter; explanation of the former is frequently much more difficult. While it is generally acknowledged that abscess of the brain may follow external injury to the skull, it is usually difficult to fully appreciate the minute mechanism of its production, and although a collection of pus may be found directly beneath and two inches below an external scar, we may be absolutely unable to demonstrate the path pursued by the agents that have produced it. In the following case, which I shall briefly report, the path of infection is made reasonably clear.

The case concerns a lady approaching elderly life, from whose upper nasal passage on one side a polyp was removed by Dr. Hinkel, of Buffalo. At first she did well; but, later, rather severe nasal symptoms presented themselves, and at the expiration of about four weeks she developed brain-symptoms and became unconscious. In this condition, Dr. Putnam, together with Dr. Hinkel, diagnosticated a probable brain-abscess. With these two gentlemen, I saw the woman and fully concurred in their diagnosis. In this comatose condition there were no localizing symptoms whatever, and it was from inference, rather than from any safer guide, that we decided to explore the frontal lobe. Accordingly, without an anesthetic, I raised a frontal flap, and made a good-sized trephine-opening about 2.5 cm. above the orbit on the side from which the polyp had been removed. After opening the dura, which appeared normal, I used the needle of an exploring syringe and passed it in in several directions, once quite through the falx and 3 cm. into the other hemisphere, searching for pus. Upon the fourth or fifth attempt it was found directly back of the trephine-opening, and at a depth of about 3 cm. The abscess-cavity was then freely opened, and 12 c.c. of fresh pus were evacuated. The cavity was drained with rubber tubing, and the wound closed and dressed.

The patient never recovered consciousness, but died the following day. Examination was fortunately permitted, and it was found that on the other side, in almost exactly the corresponding locality, was a similar collection of pus of about the same amount. The point of my needle must have gone within a very short distance of it, although it was completely missed.

Here was a case similar to others that have been noted, in which the surgeon is deluded into contenting himself with the discovery of one brain-abscess, while more or less narrowly missing others in its neighborhood. At the same time it must be said that there was absolutely nothing about the case to lead to a suspicion of trouble other than that discovered, which seemed ample for an explanation of the symptoms presented.

The case is also of pathologic interest, as it gives a clinical demonstration of recently discovered anatomic facts concerning the lymph-vascular connection between the nasal region and the encephalon. It moreover indicates a possible source of danger in operations within the nasal cavity.

HEMORRHAGE.

One of the most complete demonstrations of the formation of clot, and the proper measure for its removal, that I have ever seen, was the following:

In February, 1889, a young man in an adjoining town was injured by a falling board, which inflicted a large scalp-wound near the left parietal eminence. He was stunned, but quickly recovered consciousness, and was attended by a local physician, who

showed himself not keenly alive to modern practice in this regard, and who sewed up the scalp-wound without any of the precautions at present customary. He was then put on the train and sent to the Buffalo General Hospital, which he reached in the evening. On his arrival at the station, where he was met by the ambulance, it was noted that he used his right arm, but that during the quarter of an hour spent in the removal to the institution he lost the use of it. When he entered the hospital he was able to talk, but within half an hour he lost his power of speech, and within an hour was completely aphasic, with right brachial monoplegia. I did not see him until the following morning, when the house-staff had him ready for operation. His condition had not become aggravated during the night. Naturally the diagnosis was that of clot pressing upon certain centers, and the indication for operation was most plain. After anesthetizing him, I found considerable external injury of the soft parts, with apparently local signs of infection. After such cleansing and disinfection as was possible, I found a depressed fracture about the size of a nickel five-cent piece.

The trephine was applied at a point over the arm-center and speech-center, and a considerable portion of slightly depressed bone was removed, its inner table being considerably splintered. There was no laceration of the dura, which, however, was dark in hue and bulged into the wound. Upon making a small incision a piece of clot was expelled from the dural wound, and literally ejected to a distance of fifteen or eighteen inches, showing the degree of intra-cranial pressure. Enlarging the incision, a considerable quantity of clot, fully two tablespoonfuls, was removed with probe, spoon, and irrigating stream. A number of small brain-fragments were also extruded, showing that there had been laceration beneath the unbroken dura.

His condition was not materially changed by the operation, and three days later the wound was found united without any pus. On the following day, however, the temperature quickly rose, the flap bulged somewhat, and upon removing some stitches considerable pus was discharged. It will be sufficient to state, in this case, that the patient manifested no improvement, but became weaker and died some weeks later, and that upon autopsy three deep abscesses were found, apparently in the path of motor conduction, which would probably account for the fact that no new localizing symptoms developed themselves.

This was clearly an instance of primary infection from a head-injury, which subsequent endeavors were powerless to avert, and illustrates very forcibly the general statement that the fate of such cases is really in the hands of the man who first attends them. A corollary is that if the first aid rendered is not based upon aseptic principles, the case is usually thereby placed beyond the pale of surgical help.

Another case of hemorrhage of different character and happier termination is the following:

A lad of fifteen was, in June of the present year, ruck on the right side of his head by a wagon and was unconscious for a time. There was no distinct scalp-wound, only some bruising and ecchymosis. He was attended first by Dr. Schladermund, later by Dr. Dorr. With these gentlemen I saw him six days later. In the meantime no motor or localizing symptoms had developed, but on the previous day his temperature had begun to rise, and he had become very peevish and restless, although he was up and about the house. I could easily feel a flattened and depressed area back of the right parietal eminence. After shaving the scalp it was found ecchymotic above and behind the ear. On raising it the periosteum was found separated from the underlying bone, and an irregular, V-shaped, linear fissure with depression was found. The trephine was applied 5 cm. away from the ear, on a line from the meatus to the vertex. Immediately upon raising the button of bone, I came upon a very firm extra-dural clot in which organization had begun, and which, after cutting away a large amount of bone, I found to cover an area 6 by 10 cm. (equal to 60 sq. cm.), and to be at least 1½ cm. thick in its central portion. So tenacious was it that it was removed only with considerable difficulty. After its removal the brain did not at once rise to its proper level, and I did not think it necessary to open the dura. The wound was closed without drainage, and rapid and perfect recovery ensued.

I have seen many large flat clots inside and outside the dura, but never before had thought it possible that a clot of this size and thickness could form with so little mental, psychic, or motor disturbance.

FRACTURES.

The following cases of aggravated and fatal fracture seem to me worthy of mention:

The first was that of a middle-aged man who fell upon a slippery sidewalk and struck upon the back of the head, although his head did not receive the full violence of the fall. He was unconscious from the time of the injury, and was brought to the hospital, and was operated on in the evening a few hours after his injury. At this time he was profoundly comatose, in a rather bad condition generally, with a scalp-wound upon the right side of the head, and an evident depressed fracture. Without an anesthetic, a large flap was raised and revealed an astonishing condition of multiple fracture extending in all directions, the fragments being more or less interlocked until disturbed, after which the more I picked out the more dislocated did the others become, and it seemed as if the skull were cracked into a number of pieces. After commencing the operation there seemed to be no indication just where to stop, except the strength of the patient. The longitudinal sinus had been penetrated by a spicule and bled viciously on removal of the little fragment. So much blood was lost before this could be effectually closed that I hastily discontinued further attempts, and bent my energies to getting him off the table alive. He died shortly after the dressings were completed. His

skull was thin, the bones seemed rather brittle, but this was the most extensive fracture following a common injury that I have ever met with.

A second case of this character was that of a man of forty, who, on the 4th day of April, 1892, fell from a height not exceeding five feet, and was found unconscious. Accounts differ as to whether a stone fell with him and struck his head or not, but at all events there were no perceptible bruises on that or any other part of the body. On the morning following the injury he was up and about the house, walking, using his hands, but not talking, only replying by an inarticulate murmur to questions, *i. e.*, with aphonia. The evacuations were naturally attended to. During the third night following the injury he became hemiplegic on the right side, and next morning was comatose. I saw him with Drs. Harrington and Niemand, and found the right side absolutely paralyzed; the man presented all the ordinary signs of compression, save that the pupils responded to light. On careful palpation no tumor could be detected, nor any external evidence of fracture.

The conjunctiva of the right eye was suffused, but not that of the left. As a last resort, operation was undertaken, to see if brain-pressure could be relieved. A very little chloroform was required. A large 5 cm. trephine was applied over the left motor area rather low down, and this in spite of the fact that, now that his head was shaved, we could see a faint linear ecchymosis behind the opposite (right) ear. Even now, before exposing the bone, we could detect no certain sign of fracture, although fracture at the base was suspected. The skull was of average thickness. After removing the button of bone the dura appeared a little darker than natural. It was opened, and it was seen that there was some laceration of the brain-substance. The most striking feature was the markedly increased intra-cranial pressure. On further exploration a little clot was removed from beneath the dura, but the pressure increased. I then passed the needle of an exploring syringe in the direction of the lateral ventricle. At a depth of 6 cm. I found fluid blood and removed 12 or 15 c c. with the syringe. I then passed a director down alongside the needle and evacuated more than 30 c.c. of semi-fluid blood. After its removal the pressure was so reduced that the cortex subsided below the proper level, and the man at once began to move his right arm. I then passed a catgut drain into the ventricle and closed the dura and external wound. The patient displayed little or no signs of shock, but died four hours later of pulmonary edema. A hurried autopsy was made, and upon removing the calvarium it was found that there was complete diastasis of the longitudinal suture extending well down anteriorly and posteriorly, and that the halves of the skull were almost ready to fall apart. Their level, however, was not altered, and with all the work that I did upon the skull during the operation, no such fracture as this was suspected. A line of fracture was also found running down toward the right ear below the ecchymotic spot already noted. There were several small clots just beneath the dura, scattered over the surfaces of both hemispheres, and upon the right side some plastic exudate. At the base, especially in the right anterior fossa, was considerable thin clot. In the left hemisphere, about an inch beneath Broca's center, was a firm clot of the size of a grape. Numerous minute hemorrhages bespoke the extensive lacerations inflicted upon the brain.

Here again surprise is excited that so many and such lesions can occur with so slight immediate serious signs and results.

A few years ago, alluding to trephining for intra-cranial hemorrhage, Hutchinson said that "the modern annals of surgery do not contain any cases of hemorrhage in which life has been saved by trephining for this state of things." This statement was put on record, although at the time numerous cases were in print which completely disproved it, and of which its writer seemed to be ignorant. At present that surgeon must be considered as reprehensible who fails to open the skull in every case in which indications of early or late hemorrhage are met with aside from the localizing symptoms commonly looked for. It is stated that high temperature coming on suddenly, with slow stertorous respiration, diminishing consciousness and hemiplegia after an interval of consciousness, may be regarded as conclusive evidence of hemorrhage from the middle meningeal artery. Of the brilliant results that have followed the diagnosis and exploration of such cases surgical literature is full. The essential advance made has been in systematizing the indications, and popularizing the operative attack. The most progressive surgeons, moreover, are coming to the conclusion that even in cases of mild hemorrhage it is best to trephine, in order to avoid the risks of a small clot retained in the cranial cavity. Indeed, Horsley, to whom we owe so much, is on record as claiming that every case of fracture of the skull should be trephined. For my own part, and so far as the danger of the operation is concerned, I can only say that so far as I know among my own cases, in never a single instance has the essential danger of a patient been enhanced by trephining or other operative attack; and I desire to ally myself with those who consider that trephining, properly done, adds scarcely any appreciable danger, while it offers a most important prospect of relief, and one which no conscientious surgeon would willingly disregard or deprive his patient of.

BRAIN-TUMORS.

With intra-cranial solid tumors I have had comparatively small experience. In one case, referred to me by Dr. Putnam, in which we regarded a tumor as certainly present, but were unable to decide positively whether it was cortical or located along the deep paths of conduction, I made an

exploratory operation, which proved of no avail, and in fact ended fatally within forty-eight hours.

In another case referred to me by the same gentleman, we were both convinced of the presence of a tumor, but regarded it as inaccessible. After watching the patient's suffering for a long time, we decided to operate purely for the relief of tension, and I trephined, doing practically nothing but removing a large area of bone, with complete relief of her distressing headache, which relief continued up to the time of her death from the natural consequences of the disease. I have seen quite a number of cases of brain-tumor with reference to operation, but have in most of them declined to operate, while in those in which I was willing to do my part, the patients have declined the proffered relief. A somewhat perplexing case came under my notice not long ago, in the person of an elderly woman, who fell down stairs and struck her head, and who a few days later became comatose, and developed a peculiar sighing respiration with frequent hiccough. I was invited by Dr. Diehl to see her with reference to operation, but could find no operative indications. She died on the following day, and on autopsy there was found acute meningitis of ordinary type. On removing the brain, a peculiar condition of the lower surface of the cerebellum was observed, and after its removal a cluster of cystic growths was found, which were attached a little to one side of the middle line, upon the lower surface of the cerebellum, where they had made depressions into which they seemed to fit. One of these was of the size of a small grape, two of the size of large peas, and there were several quite small ones. They had a peculiar pearly sheen, were cystic in character, although their walls were quite thick, and upon minute examination proved to be cholesteatomata. We learned that during the last few months of her life the patient had developed a frequent, though not constantly staggering gait, and that at times she complained of giddiness and vertigo.

EPILEPSY.

No discussion of brain-surgery nowadays, in which the surgical treatment of epilepsy has been disregarded, has been noted in recent surgical literature, and for very obvious reasons. My own experience in this direction has been, I imagine, like that of most other surgeons—*i. e.*, a very mixed and contradictory one. I have had some very brilliant results, and, I think, a few positive cures; and, on the other hand, I have operated without noticing the slightest permanent improvement. In no distinctly epileptic case has any harm been done by the operation, unless there be included in this category two cases of linear craniotomy to be spoken of later. If I may be permitted to state my present opinion concerning the surgical treatment of epilepsy, it would be about as follows: There are certain cases in which prognosis is very favorable; there are others in which the operation must be regarded as an absolute experiment, albeit upon scientific principles; and there are still others which, although accompanied by focal symptoms or other features that ordinarily necessitate operation, we must regard as absolutely hopeless; it is seldom possible to designate to which class a case belongs until the operation is tried. But I think that this statement ought to be tempered by another, to the effect that surgery alone is rarely, if ever, sufficient, and that it must be accompanied and followed, and, perhaps, even be preceded, by medicinal and dietetic treatment, and that this feature of these cases is too often disregarded. To this second statement should be added, perhaps, a third, to the effect that when operating for pronounced epilepsy we have to combat not only a somatic lesion, but an epileptic habit, so to speak, and that a mere removal of the lesion is not necessarily or always enough to break up the well-formed habit; that it is this which calls for the long-continued post-operative treatment which often causes discouragement and carelessness, and, finally, inattention and absolute disappointment. I firmly believe that if those who operate frequently for epilepsy would steadily and subsequently treat their cases by the other measures alluded to, and keep them up for five years, at the expiration of that time much better results would be reported than we now hear of. This refers not only to cases of head-injury in which the conventional operations about the skull are performed, but also to peripheral irritations in other parts of the body, necessitating various other operations.

Of purely head or brain cases of this character, I will only call attention to two or three. One was a case operated on in 1884:

A man aged twenty-three, when a boy, fell into the water and struck upon a submerged timber, and was unconscious for two days afterward; he later developed epilepsy, and was afterward in the hospital on Ward's Island and escaped from there when they proposed operation to him. He was picked up in a fit on a Buffalo street, and sent to our hospital. Upon admission he was having at least one fit every day. There was a distinct depression on one side of the median line. The overlying skin was very sensitive. The operation was performed on December 6, 1884; the bone was very thick (2 cm.), with external depression, but none of the internal table could be made out; the external sensitive area was excised. For some days he was violently disturbed; then he showed material improvement, save that on the last day of the year he had several fits, but none during the preceding ten days. Respiration became so embarrassed as to call

for artificial aid. A few days later he was sent to the Almshouse, where he had a number of seizures, during one of which a pail of cold water was thrown over him. He quickly recovered, and had no more while there. He left the institution in May, was reported as not having had any fits in three months, but has not since been heard from.

The first case attempted in this country in accordance with the principles of cerebral localization was in a patient upon whom I operated Nov. 16, 1886:[1]

The patient was a man of forty-seven, who more than a year previously had been thrown and dragged upon the ground. Four hours later he became unconscious, although there was no external violence to the skull. He was unconscious for sixty-eight hours, and gradually recovered. He developed nearly absolute aphasia, his vocabulary being limited to perhaps a half-dozen words. His right arm was also paralyzed and cold. His epileptic condition developed four months after his injury, and became very pronounced. His lesion was diagnosticated as cystic degeneration of a clot, and its position correctly determined. Upon trephining it was found as expected, only perhaps larger. A cyst was discovered with capacity of 40 c.c. of fluid, in dimensions 10 by 3 cm. It was dissected out, and the patient made a perfect recovery from the operation. His epileptic and aphasic condition, however, have since then only in small measure improved. This latter condition I can explain by atrophy of the third parietal convolution, due to pressure of the cyst. For the former I can give no more satisfactory explanation than in any such case.

Three or four similar cases in which cysts have been accurately diagnosticated and indicated either by localizing symptoms or by external scars, have been operated upon after much the same fashion, with results in every case encouraging, but in no case completely satisfying. It has seemed that in every case the cyst had existed for a time long enough to produce atrophy of the underlying portion of the hemisphere, with permanent loss or disturbance of its proper functions.

In one case operated upon last year I had an experience with hemorrhage which may be of interest and encouragement to others. It was one of those instances of traumatic Jacksonian epilepsy with a scar near the middle line of the scalp. The operation was without incident until the dura was opened, and adhesions found between it and the cortex. These were tough and firm, and in the endeavor to remove the adherent portion of the cortex some unusually large veins or abnormal connections with the longitudinal sinus were severed, and the bleeding became serious and even alarming. I finally succeeded to my perfect satisfaction, however, in checking it by packing with iodoform-gauze, the tampon of which I retained *in situ* by the pressure of the overlying skin flap, which I restored to its place after inserting secondary sutures of silk, which were left long and tied by a bow-knot. Two days later I untied the knots, lifted up the flap, removed the tampon without a particle of hemorrhage, restored the flap to place, utilized the secondary sutures for its retention, and got beautiful union by first intention. This patient went home very much improved, but during the hot weather of the past summer was, I have been informed, injudicious and had some return of his old trouble, the seizures never being of so serious a character as before, and being quite controllable so long as he takes bromides and borax in ordinary doses—a line of treatment which I have urged him to continue indefinitely.

Last spring, at the meeting of the American Surgical Association in Boston, Dr. Beach, of that city, presented a case operated upon for traumatic epilepsy, in which, in order to prevent the re-formation of adhesions between the dura and the other tissues he had inserted a piece of thin gold foil, carefully sterilized, with apparently the best results. Following his example, I have twice operated in the same way, cutting out with a pattern a piece of dentist's foil a little larger than the bone opening, and fitting it in, after closing the dura, between it and the margin of the bony defect, then closing the scalp-wound over it, all without drainage. There has not been the slightest disturbance of any kind, and the progress of these cases, so far as I have been able to judge of them or to hear, has been very encouraging.

This measure (insertion of gold foil) I now intend to introduce and recommend in recent accident cases in which trephining is practised for depressed fractures, etc., for the purpose of preventing adhesions between the scalp and dura.

In another case, in a young lady with Jacksonian epilepsy, in which the aura usually commenced in the arm, and in which there were noticed also what my colleague, Dr. Putnam, has been recently the first to call attention to, namely, sleep-movements in the same arm, I last spring exposed the arm center, determined its exact location with the faradic coil, and excised the same as accurately as I could to the depth of 1 cm. Perfect primary union took place, but the result has been disappointing, there having been only slight amelioration of the symptoms. In her case, however, we have had to contend with peculiar gastric symptoms, dilatation of the stomach, etc., which seem to have had a marked influence in depriving her of the benefits legitimately to have been expected from such an operation. Moreover, she has a peculiar idiosyncrasy, in that she cannot take bromides in any form without the development of intense bromism, her body showing many scars of ulcers produced in the attempt to bring her under the influence of the drug.

(*To be concluded.*)

[1] Vide Trans. Cong. Am. Phys. and Surg., vol. i, p. 285.

AN EPIDEMIC OF MEASLES.[1]

BY L. EMMETT HOLT, M.D.,
PROFESSOR OF DISEASES OF CHILDREN IN THE NEW YORK POLYCLINIC, NEW YORK.

THE study of epidemics of contagious diseases in institutions is always a matter of interest from the fact that the cases can be closely watched and careful records made. The epidemic here reported occurred in the Nursery and Child's Hospital during the months of February, March, and April of the present year. In all there were 143 patients attacked; of these, 75 cases occurred in February, 46 in March, 21 in April, and 1 in May. This epidemic followed the rule that applies to measles that the disease prevails most frequently in the spring months, and that such epidemics are most severe.

Age and susceptibility. Of 62 children over two years of age, 5 had previously had measles in the hospital, and did not take the disease; of the remaining 57 children only 2 escaped; one of these was for weeks constantly exposed, but it did not seem to be susceptible.

There were 117 infants under two years of age who were exposed; of these, 88 took measles, and 29 escaped. Not a single child under six months contracted the disease.

Incubation and spread of the disease. The mode of introduction of the infection could not be traced. Case I was diagnosticated in the reception building Feb. 2d. No other cases occurred here until Feb. 16th (one case), and on Feb. 17th (two cases); after that cases sprang up irregularly. As Case I was removed from the ward on Feb. 2d, the incubation in the three other cases must have been at least fourteen days in one and fifteen in two.

On Feb. 4th a boy showing no symptoms of measles was removed to another building in the hospital known as the East house; two days later the measles rash appeared, and he was immediately isolated. From this child the infection of this building originated. On Feb. 11th the first secondary case appeared here; on Feb. 15th the second case; on Feb. 16th five cases; on Feb. 17th five more cases, and from this time cases sprang up rapidly all over the ward. The cases developing on Feb. 11th could not have had a shorter incubation than five days, or a longer one than seven. In the cases of Feb. 15th it was either nine or eleven days; in those of Feb. 16th, ten or twelve days; in those of Feb. 17th, eleven or thirteen days. These last cases followed the rule that in a great proportion of cases the incubation varies between ten and fourteen days.

Mortality. Of 143 cases, 51, or about 36 per cent., proved fatal. The annexed table shows the relation of the age and mortality:

6 to 12 months,	42 cases.	Mortality	33	per cent.
1 " 2 years,	51 "	"	50	"
2 " 3 "	27 "	"	30	"
3 " 4 "	20 "	"	14	"
4 " 5 "	3 "	"	0	"

The lower mortality of the first year of life than of the second year is at variance with the statistics of most writers on the subject, and also with my own experience in other epidemics, in which the rule has been that the highest mortality is in the first year of life, with a steady improvement as age advances.

Eruption. Although in the largest number of cases the eruption appeared on the third or fourth day of the disease, the variations were very wide; especially striking were the large number of cases with a short invasion. The day of the disease upon which the rash was first noticed was the first day in 16 cases; second day in 20 cases; third day in 33 cases; fourth day in 34 cases; fifth day in 15 cases; sixth day in 11 cases; seventh day in 2 cases; eighth day in 2 cases; ninth day in 2 cases; after the ninth day in 3 cases. It is to be borne in mind that during this epidemic all of the children in this institution were watched very closely, and it does not seem probable that many errors have crept into these observations.

A very great variety in the character of the eruption was seen, as well as in the time of its appearance. In about two-thirds of the cases it was quite typical and abundant. In the remainder it was sometimes so faint as scarcely to be diagnosticated. In 7 cases it was hemorrhagic, and only one of these recovered.

Temperature. In 129 cases in which the temperature was noted, the initial temperature did not exceed 101.5°. In 64 cases it was 102° or over. Quite surprising was the large number of cases beginning abruptly with high temperature. In no less than 15 cases was the initial temperature 104° or over, although great pains was taken to record the temperature of every child that showed the slightest indisposition.

The highest temperature reached in the disease, when studied side by side with the mortality, is interesting. Thus, of 33 cases in which the temperature did not exceed 104°, only 2 died. Of 28 cases in which it touched 104.5°, 4 died. Of 43 cases in which it touched 105°, 20 died. Of 26 cases in which it touched 105.5 or 106°, 15 died; and of 10 cases in which 106.5°, or over, was noted, but 1 recovered. A temperature, then, of 104°, or 104.5°, may be considered as normal to the disease, but every degree above this point is accompanied by a largely increased mortality.

The typical temperature-curve of a gradual rise and a gradual fall was seen in 52 cases, all of which recovered.

In 8 additional cases the same curve was observed, with the exception that the initial temperature was

[1] Read before the New York Clinical Society, October 27, 1892.

high; it then fell to normal, or nearly so, before the gradual rise.

A third temperature-curve was observed in 26 cases, all of which proved fatal, most of them from pneumonia. In this variety the temperature rose rapidly to 103°, or 104°, and thereafter remained steadily high, or high and fluctuating until death.

The fourth variety was a curve rising gradually to the maximum, this occuring usually on the day of eruption, and thereafter a steadily high temperature until death. This was seen in 20 cases, nearly all of which had pneumonia.

A secondary rise after the temperature of the measles had subsided was seen in 9 cases, 3 being fatal. In 7 of these cases the exacerbation in fever was due to pulmonary disease, once to otitis, and once to entero-colitis.

Quite a surprising thing in many of the cases was the prolonged course of the temperature, even where no complications existed. In 32 uncomplicated cases the primary fever lasted four days or less in 4 cases; from five to eight days in 16 cases; and from nine to thirteen days in 12 cases.

Moderate variations in temperature frequently follow acute febrile processes in children when no cause can be found. Such oscillations as from 99° to 100.5° often continue for a week or ten days, gradually subsiding to the normal.

The duration of the pyrexia in fatal cases varied between five days and three months. In most cases these prolonged elevations of temperature depended upon pulmonary complications.

Complications. By far the most frequent complition was broncho-pneumonia, which occurred in 58 cases, with 40 deaths, or a mortality of 70 per cent. The general impression has always prevailed that the broncho-pneumonia of measles is particularly fatal. I find, however, in comparing these statistics with those of 156 cases of acute primary pneumonia, that the death-rate is identical in the two. These observations have both been made upon children of the same age, class, and surroundings.

While we must admit that measles is a most potent factor in causing pneumonia, it does not appear that the latter disease is more dangerous than when occurring under other circumstances.

The day of development of the pneumonia it is impossible to state with precision. In those cases in which the attack of measles began abruptly with a high temperature, which continued steadily high until the eruption, the pneumonia seemed to have developed from the very first day. In some, the physical signs were unmistakable even before the eruption appeared. In addition to the cases of simple pneumonia, there were three cases of pleuro-pneumonia, one of which went on to empyema. Pleurisy and pericarditis occurred in one case.

Otitis was noted in 20 cases, or 14 per cent. This proportion is very large. I have frequently seen other epidemics in which not a single case was complicated by otitis. The younger the patient, as a rule, the more frequent is this complication. It is seen more frequently in the winter and spring than at any other season. Both ears were affected in 14 cases, one ear only in 6 cases. The most frequent time at which a purulent discharge was noticed was between the eighth to the twelfth days.

Diarrhea was marked enough to be noted in 17 cases. In 11 of these it was severe. In 4 cases the intestinal complication was the cause of death, the cases going on to a well-marked entero-colitis.

Adenitis was marked only in 3 cases, in none of which suppuration took place.

Membranous laryngitis developed in 2 cases, in both of which intubation was done, and both proved fatal from membranous bronchitis and pneumonia. These children were aged two and a half and three years respectively.

Severe catarrhal laryngitis occurred in 4 cases, all recovering. Severe purulent conjunctivitis was seen in 3 cases, gastritis in 1 case, retro-pharyngeal abscess in 1 case, and erysipelas in 1 case. Bronchitis occurred in every severe case. There was nothing noteworthy about any of these complications.

Tuberculosis followed in 3 cases. One of these children died of subacute broncho-pneumonia about four weeks after the measles, the autopsy showing old tuberculous lesions, and some active disease just beginning in the adjacent parts of the lung.

The temperature-chart of the second case I would gladly present in full did space permit. The fever continued without interruption from the attack of measles for three months, until the child died. During the measles the temperature was a typical one, falling to the normal on the twelfth day. It then rose gradually for a week, and from this time fluctuated irregularly between 99° and 102°, occasionally going to 104°. This irregular temperature continued until the last week, during which it ranged between 99° and 101°. It was not hectic at any time.

The child died on the eighty-ninth day from the onset of the measles. Frequent and careful examination of the lungs made for two or three weeks both by physicians of the house-staff and by myself failed to disclose any positive signs in the chest. The patient passed through a moderate attack of diarrhea, from which he recovered; and still his temperature kept up. He did not lose flesh rapidly, but wasted slowly, and became decidedly anemic. He was sent to the country for two weeks, but came back no better than before, and now for the first time—less than three weeks before his death—posi-

tive signs of consolidation were made out at the apex of the left lung. The general symptoms of tuberculosis were now evident, and he failed rapidly until death.

This case is interesting, because of its completeness, as showing the insidious manner in which tuberculosis begins after measles, and also that the general symptoms may for a long time precede the local ones. It is interesting further to note that the child never presented a hectic temperature, although extensive excavation of the lung was found at the autopsy. This case well illustrates the rule that in a vast majority of cases of tuberculosis in infants the temperature-curve differs in no way from that seen in ordinary broncho-pneumonia.

The proportion of cases in which tuberculosis develops after measles is frequently larger than that shown in these statistics. It is not unlikely that the returns in regard to tuberculosis are not yet all in. Why it is that measles is so frequently followed by tuberculosis we cannot positively say. My own belief is that in most such cases there has previously existed latent tuberculosis in the bronchial lymph-nodes, and that under the stimulus of the infection of measles, an acute process is lighted up in the lymph-nodes, resulting in the infection of the lungs themselves. This seems more plausible than that the attack of measles increases the patient's susceptibility, so that he falls a ready victim to tuberculosis on exposure. It is interesting to note, as in the case before us, that tuberculosis may follow, even though the attack of measles be not complicated by pneumonia.

The causes of death in the 51 fatal cases were as follows:

	Cases.
Broncho-pneumonia	37
Pleuro-pneumonia	2
Broncho-pneumonia and empyema	1
Acute pulmonary congestion	1
Pericarditis and pleurisy	1
Tuberculosis	2
Entero-colitis	4
Membranous laryngitis	2
Measles, toxemia	1

The lungs are thus responsible for 41 of the deaths, and only one case died from the disease uncomplicated.

TREATMENT.—In mild cases the treatment, as a rule, resolves itself into isolation of the patient, and keeping him in bed during the attack. In the severe cases it is the pulmonary complications that are of the greatest importance, especially broncho-pneumonia.

Perhaps so high a mortality as 36 per cent. ought to debar us from saying much in favor of the plan of treatment adopted. No one, unless he has gone through an epidemic in an institution containing children of this age, can appreciate the gravity of this disease. An attempt was made to prevent broncho-pneumonia by putting every child to bed at the beginning of the catarrhal symptoms and by keeping him there through the entire febrile period. The oil-silk jacket was applied to the chest as soon as any physical signs of bronchitis appeared.

In the cases in which pneumonia developed, the chief reliance was upon counter-irritation by mustard, five or six times a day; alcoholic stimulants freely administered; for the cough, when distressing, inhalations of various vapors. Other heart-stimulants than alcohol, such as strychnine, strophanthus, and nitro-glycerin, were used in a number of cases, and in only a few the effect seemed beneficial; but, as a rule, they were greatly inferior to alcohol. But little other medicine was given, the plan being to save the stomach as much as possible for food and stimulants.

In two or three cases life was prolonged for several days after the patients were unable to take anything by the mouth by means of gavage or forced feeding, and one infant is now plump and hearty whose life was saved by this method. Both predigested foods and stimulants were administered in this manner with very little disturbance to the patients. In almost every instance the entire amount was retained by the stomach.

During the period of desquamation all children received warm baths and inunctions. Quarantine was generally maintained in uncomplicated cases for four weeks, and no secondary cases were traced to patients who were then distributed through the other wards of the institution.

In a few instances of hyperpyrexia cold baths and cold packs were used, and in these no unfavorable symptoms appeared. In cases with cyanosis, high temperature, and great dyspnea, hot mustard-baths and mustard to the entire body seemed to be more serviceable than any other means employed.

There did not seem to be any great difference in the severity of the cases during the different stages of the epidemic.

Following the reading of the paper, in the discussion by the members of the Society:

DR. D. B. DELAVAN spoke of the scanty attention usually paid to the catarrhal symptoms during and after convalescence, and strongly advocated their more careful treatment, to avoid future trouble from chronic inflammations of the upper air-passages.

DR. G. A. SPALDING called attention to the lowered mortality in older children, describing a recent epidemic of measles at the House of Refuge, in which 90 children, from ten to twenty years of age, were attacked, with only one death, the case being complicated by advanced pulmonary tuberculosis.

DR. W. H. FLINT narrated a case of hemorrhagic measles in which death resulted on the fifth day from sudden heart-failure.

DR. W. H. KATZENBACH presented the history of a case of measles in a three weeks' old baby with a marked tuberculous family history, in which general tuberculosis directly followed the attack of measles.

DR. F. W. JACKSON, in speaking of re-infection, described an outbreak of measles in a family of four children who were successively attacked. During the illness of the child last infected the first child suffered a second attack, seven weeks after the first infection. He asked Dr. Holt how many of his cases suffered from re-infection.

DR. HOLT, in reply, said that possibly two cases were attacked for the second time.

DR. JACKSON also narrated the history of a fatal case of measles in a young girl, complicated by diphtheritic membrane on the tonsils, gums, palate, and in the nose, with necrosis of the septum. He regarded the case of interest, because the patient had been previously healthy, and had lived amid the best hygienic surroundings.

DR. G. M. SWIFT spoke of an epidemic at the Foundling Asylum, in which necrotic inflammations and noma were of frequent occurrence.

DR. BEVERLEY ROBINSON suggested that many cases of perforated septum found after measles might really have preceded that disease.

DR. ROBERT ABBE described three cases of hemorrhagic measles, all occurring in young girls:

The first case developed acute endocarditis during the attack, dying from the heart-complication in one and a half years.

The second case died during the attack, from hematemesis and perforation of a gastric ulcer, which might have been caused by the measles.

The third case recovered even after a complicating pneumonia.

DR. G. R. LOCKWOOD asked whether Dr. Holt's experience had shown that tuberculosis usually developed directly after the measles, or after one or more years, the broncho-pneumonia causing inflammation of the bronchial glands, which subsequently became the seat of tuberculous infection.

DR. HOLT said, in reply, that it was impossible to answer with any degree of certainty, owing to the impossibility of obtaining accurate clinical histories and keeping track of the patients. He thought that tuberculosis might develop at any time, even twenty years after the attack of measles.

He also spoke of the possible connection between mouth-bacteria and pulmonary complications, and advocated great care in cleansing the mouth in every case as a prophylactic measure.

THE NATURE OF SHOCK AND ALLIED CONDITIONS.

BY WM. C. DABNEY, M.D,
UNIVERSITY OF VIRGINIA, VA.

IT does not seem to be an easy matter to give a good definition of shock. Billings defines it as "the nervous exhaustion and depression of the heart's action, caused by a wound or injury." Gould adds to the causes mentioned by Billings one other, "strong emotion." Keating's definition is as follows: "Nervous shock or sinking; sudden depression and prostration from powerful impression; an indefinite term applied to every grave or fatal source of depression occurring during or after serious surgical operations, injuries, or mental emotion."

Dr. Mansell-Moullin gives a definition which is more exact and more in accord with modern physiologic views. He says the term shock was formerly employed in any case of sudden death or collapse following injury or mental emotion, without discoverable lesion; but it has of late "become more and more definitely associated with the conception of a sudden check to the circulation brought about through the agency of the nervous system, and resulting either in a death so immediate as scarcely to have a parallel, or in a condition of prolonged prostration, with or without a more or less successful reaction."

I propose to consider in the present paper the nature of shock and of certain conditions which resemble it.

With respect to the *symptoms* of shock, we do not find the same vagueness which characterizes the definition of the disturbance given by most writers. The trouble is, unfortunately, sufficiently common for every physician to be familiar with its characteristics.

The most prominent symptoms, as a rule, are pallor, faintness, a rapid and very feeble pulse, extreme nervous depression or lethargy; now and then great excitement, sighing respiration, a cool and clammy skin, depression of temperature, sometimes nausea and vomiting, in mild cases, at times, a watery diarrhea, and in some cases, especially in shock from railway accident, a distention of the bowels with gas, a symptom that seems to have escaped notice, but which is at times exceedingly marked and troublesome.

The tympanites just mentioned deserves a little further notice. Some years ago, after a serious railway accident, I saw four cases in which it was extremely marked. In two of these cases there was fracture of one femnr, but in the others there was no apparent injury, except some bruises, and these were not very marked. The pulse in each case was very soft and compressible, the expression was singularly dull and stupid, and the mental operations were very slow. All these cases ended in recovery, but convalescence was tedious. Constipation, as might reasonably be expected, was troublesome, and there was besides retention of urine for a few days.

The cause of the tympanites in cases of shock is evidently a loss of tone of the muscular coat of the bowel, and this is certainly due to defective nervous action, and, as I shall try to show hereafter, is

very suggestive as to the pathology of many cases of shock.

Before we can profitably consider the essential cause of shock, however, it will be well to consider the circumstances under which it may arise and in what respects it differs from syncope and certain allied conditions. The definitions given state some of the conditions with sufficient distinctness, but it is a suggestive fact that injuries of certain parts of the body are far more liable to cause shock than injuries of other parts. A blow upon the abdomen, for example, is far more liable to cause severe shock than a blow of like violence inflicted elsewhere. Dr. Mansell-Moullin states that no death from such an injury, without discernible lesion, has been reported; but this is clearly a mistake. Flint records such a case in his *Physiology*, and other cases have also been reported. That death may be caused by drinking ice-water in large quantities, when overheated, is a popular impression; but I know of no recorded case of the kind. It is a well-established fact, of importance in this connection, that operations on the abdominal viscera are very liable to occasion shock unless steps are taken to prevent it. But there are other points yet, connected with abdominal affections, which seem to me to throw considerable light on the nature of shock. It is a well-established fact that if, in cases of ascites, the fluid be rapidly withdrawn through a large canula, and no steps be taken to furnish counter-pressure as the fluid is withdrawn, faintness, pallor, a rapid and feeble pulse, and all the other evidences of shock may appear. Then, we sometimes see sudden attacks of extreme pallor and faintness in women after labor who have suddenly assumed the erect position, and these attacks may readily pass on to syncope, unless prompt relief is afforded.

It will be well just here to state the difference between shock and syncope. The only difference, it seems to me, is one of degree. In most cases of shock there is a partial withdrawal of blood from the nerve-centers, and lethargy results, while in syncope a still larger amount of blood is withdrawn, and there is complete loss of consciousness. Nor does the fact that there is sometimes wild excitement in cases of shock militate against this view. It is well known that excitement sometimes occurs in connection with profuse losses of blood, and in the return from syncope.

Injuries of other parts or organs will frequently occasion shock. Injury of the testicles seems especially likely to cause it, and even moderate pressure of these organs will occasion faintness and nausea.

In trying to establish the pathology of shock we should bear in mind the following facts with respect to this trouble:

1. The pulse is rapid, feeble, and soft.
2. The skin is pale.
3. There is great nervous depression.
4. In some cases there may be great tympanites.

There are, of course, other disturbances of the normal physiologic functions, but these are the essential points.

The theories that have been advanced to explain the phenomena of shock are as follows:

1. A spasm of the heart and vessels.
2. Extreme weakness (paresis) of the heart.
3. Dilatation of the large vessels, especially in the abdominal cavity.

1. A slight examination will show that the symptoms of shock cannot be explained by spasm of the bloodvessels, for in such a case the blood-pressure would be increased and the heart's action would be slow.

2. Extreme weakness of the heart may be induced in three ways: (1) By a direct action on the muscular tissue itself or its contained ganglia; (2) by paralysis of the vagus; or (3) by the stimulation, either directly or by reflex action, of the inhibitory fibers of the vagus. The first, the loss of power of the muscular tissue itself, and its contained ganglia, will not explain all of the symptoms of shock, and may be dismissed at once. The paralysis (or paresis) of the vagus may be brought about, as paralysis of any other nerve, in several different ways, namely, some action may be brought to bear on the nerve-center in the brain (by emotional disturbance, probably by certain poisons, or by an impression made on some nerve, at a distance, and transmitted to the brain by the afferent nerves) or on the trunk of the vagus itself, or on some of its branches. In this latter case, however, the action on the heart is probably brought about by reflex influence. In any case, when the vagus itself is paralyzed or paretic, the heart's action becomes rapid and feeble, and many cases of shock are more readily explained in this way than in any other.

But there is yet another way in which weakness of the heart may be caused. If the vagus be irritated in animals the heart becomes slow and its action weak, and if the stimulus be sufficiently intense and prolonged it will stop in diastole. It would appear, also, from the well-known experiments of Goltz, that this "inhibition" of the heart's action may be caused by reflex influence, the irritant being applied to the branches of the vagus, and probably it may only occur when some other afferent nerves are irritated. It is not, probable, however, that shock is often caused in this way, for in cases of shock the pulse is always rapid, instead of slow; but it is possible that some cases of sudden death from shock may be due to a reflex inhibition of the heart's

action. Possibly the cases of sudden death in the course of typhoid fever are to be explained in this way.

3. The dilatation of the large bloodvessels, especially those in the abdominal cavity, seems to me to explain the nature of shock in many cases far better than any other view, though it is probable that in most, if not all cases, there is a reflex paresis of the vagus as well. It is a well-established fact that the vessels in the abdominal cavity, in the so-called splanchnic area, are capable of enormous dilatation, and it is almost certain that the dilatation of these vessels causes the pallor and faintness in the cases of tapping, and after some cases of labor, to which I have already alluded. It is very doubtful whether, under ordinary circumstances, these vessels are capable of sufficient dilatation to cause death or even syncope. Tappeiner's experiments seem to prove this; but in cases in which the vessels have become much enlarged, and, perhaps, more numerous, as in many cases of ascites, or during pregnancy, such a result might readily occur. It is highly probable, as I have before stated, that the action of the heart is also weakened; but the small pulse is, of course, readily explained by the fact that in consequence of the dilatation of the vessels in the splanchnic area but little blood is carried to the heart, and there is consequently but little to be pumped into the vessels.

But we have other and very striking evidence that shock is in many cases due to the dilatation of the vessels in the abdominal cavity—evidence with which surgeons doing abdominal work are especially familiar. If shock occurs during such abdominal operation, nothing revives the patient so quickly as pouring hot water into the abdominal cavity, and it is well known that the effect of the hot water is to cause contraction of the bloodvessels, and thus throw more blood into the general circulation. It has recently been proposed by Kottmann to inject salt solution into the bloodvessels in cases of shock, and one object which he thinks might be attained in this way is to fill the bloodvessels, and thus counteract the distention of the bloodvessels in the abdomen.

A study of the subject has led me to the following conclusions:

1. Shock is not due to a spasm of heart or vessels.

2. It is often due to a paresis of the vagus nerve, caused either (1) *directly* by emotions, severe jars, etc., or (2) by *reflex* influence from injuries of other nerves (certain poisons by *direct* action also cause symptoms much like those of shock).

3. It is questionable if shock is ever due to the inhibitory action of the vagus on the heart's action, but possibly some cases of sudden death from shock may be explained in this way.

4. In many cases shock is due to the dilatation of the vessels in the abdominal cavity, which is often accompanied by a paresis of the vagus nerve.

THE EARLY EXTIRPATION OF TUMORS.

BY JOHN W. S. GOULEY, M.D.,
SURGEON TO BELLEVUE HOSPITAL, NEW YORK.

MOST of the following propositions were submitted for discussion and for an expression of the views of members of the New York State Medical Association concerning the metamorphosis of external tumors, the propriety of their excision in an early stage of development, and the contra-indications of operative interference:

1. There is no solid tumor that may not become malignant.

2. Although metamorphosis of benign into malignant tumors seems to be a well-established fact, the precise time of its beginning has not yet been determined.

3. A stage of benignity has been observed in most malignant tumors. This benign stage is often short, but it sometimes continues many years.

4. Potentially malignant tumors may, with great advantage, be excised during an early period of their stage of benignity.

5. Exclusive medicinal or local treatment of tumors can be of no service, and may be considered as indirectly harmful by preventing or delaying surgical treatment.

6. It is not necessary to make an accurate differential diagnosis of tumors until after their excision.

7. Accessible morbid growths should be excised as soon as discovered, however small or apparently harmless, because they are worse than useless to the human economy, because of their liability to be transformed into malignant tumors, and because no means are yet known by which to ascertain the exact time of the beginning of metamorphic action.

8. Recurring tumors should be excised as soon and as often as they appear, so long as there is enough tissue for cicatrization. In some cases skin-grafting is of the greatest service.

9. Before excision of a malignant breast-tumor, the axilla should be cleared of all lymph-glands, and the last part of the operation should be the removal of the breast, together with the surrounding connective tissue and pectoral fascia.

10. Whenever its locality permits, the wound resulting from the excision of a malignant tumor should be scarred with the thermo-cautery.

11. "Atrophic" carcinomata should be excised in the beginning of fibrous transformation, but should not be removed when in an advanced stage of sclerous degeneration, particularly when metastasis to internal organs has already occurred.

12. Multiple malignant tumors, as a general rule, should not be removed, especially those that are disseminated over a large extent of the body or those that involve many lymph-glands. When, however, one of these tumors is large and interferes with a vital function, or is in a state of ulceration, it should be excised, if only to give temporary relief.

13. External malignant tumors associated with extensive visceral involvement should not be excised, as the operation would not be likely to prolong life.

14. Ulcerated malignant tumors, causing much pain and exhaustion, should be removed to mitigate suffering, even if the operation prolong life only a short time.

15. In the case of large ulcerated carcinomata, when cutting operations are contra-indicated, soothing lotions and disinfecting cataplasms should be frequently applied, opiates should be administered in sufficient quantity to relieve pain, and deodorizers liberally employed.

16. Bleeding malignant tumors require prompt excision to prevent death from hemorrhage, even though the operation serve to prolong life only a few weeks.

17. Malignant tumors of long bones demand radical measures, such as immediate amputation at a considerable distance from the seat of disease. If the tumor be in the middle of the leg, the amputation should be at the knee-joint; if in the thigh, the hip-joint exarticulation would be indicated; if in the forearm, the limb should be removed at the elbow-joint; if in the arm, the limb should be disarticulated at the shoulder-joint.

18. Medicinal treatment, after excision of malignant tumors, should not be ignored, and should consist mainly in the use of reconstituents.

ORIGINAL LECTURE.

THE COLD-BATH TREATMENT OF TYPHOID FEVER.[1]

BY WILLIAM OSLER, M.D.,
PROFESSOR OF MEDICINE IN THE JOHNS HOPKINS UNIVERSITY.

GENTLEMEN: While no one can bring a railing accusation against us as a profession for neglecting the things that pertain to the cure of disease by drugs, we must bear meekly the rebuke of those who claim that non-medicinal agents, such as systematic exercise, fresh air, and the use of water scarcely receive the attention which their virtues demand. Particularly is this the case with water as a means of controlling the severer symptoms of fever. For centuries it was one of the great hygienic measures, and the use of baths in disease is recommended by writers in every age since Hippocrates. You will find, indeed, in the writings of the Father of Medicine an admirable account of the indications and uses of the bath, to some of which I shall refer again.

During the first half of this century hydrotherapy was largely in the hands of the hydropaths, by which term may be distinguished the large class of hermaphrodite practitioners who look upon water as a cure-all; but under the guidance of von Ziemssen, Liebermeister, Winternitz, Brand, and others, the use of compresses, douches, and the various forms of baths has been introduced largely into rational practice. More than thirty years ago Brand, of Stettin, urged the systematic treatment of typhoid fever by cold baths. The method has been successfully carried out on a large scale in Germany and in France, but in England and in this country only spasmodic and not very successful efforts have been made to encourage its use, at least in hospital practice. The remarkable figures published by Brand in 1887 made me determine to adopt it at the earliest possible date, but when the wards were first opened the arrangements were not adapted, and our staff of nurses not large enough, to carry out the method thoroughly, so that for the first year we followed the ordinary symptomatic and expectant plan of treatment. But I am not myself personally responsible for its introduction. During my absence in Europe, in 1890, my former first assistant, Dr. Lafleur, now of Montreal, after a visit to the wards of Dr. J. C. Wilson at the German Hospital in Philadelphia, began the practice, and the hospital is under a lasting debt to him for the accuracy and care with which at the outset, and for more than a year subsequently, he supervised the details of the treatment.

Most of you have seen the application of the method in the wards, but I shall emphasize certain points in the procedure by having one of the patients bathed before you, so that you may see the minutiæ.

The ward orders are as follows: The temperature of typhoid-fever patients is to be taken every two hours; when above 102.5°, a bath at 70° is to be given every third hour. The patient before you has reached the sixteenth day of the disease. He has been in hospital nine days, and has had thirty-six baths. The tub is wheeled to the side of the bed—a practice much preferable to that followed in some of the foreign hospitals of carrying the patient to the bath, or indeed allowing him, if he is able, to walk to it.

The technique of the procedure is as follows: The tub, as you see, is of light *papier-maché* material, and even when filled with water, as at present, is readily portable on wheels. The temperature of the water is 68°. Here in the amphitheater we shall reverse the usual procedure and have the patient wheeled to the side of the bath. The preparation is extremely simple. The heavier bedclothes are removed and a light sheet is thrown over the patient from the neck down. Under this his night-shirt is removed, and, if necessary, a light napkin is applied over the genitals. The patient is given a small quantity of whiskey. Two orderlies will now lift him into the bath, still covered with the sheet. This patient happens to be a large, well-nourished man, and he fits very comfortably into the bathtub, having, as you notice, an air-cushion supporting the head and

[1] A Clinical Lecture delivered to the Graduate Class of the Johns Hopkins Hospital, Baltimore, November 9, 1892.

neck. You will see in the ante-room one or two other forms of bathtubs, one of which has a sloping platform for the support of the back. In more delicate, particularly in thin, emaciated, patients the greatest care must be taken to support the nates and make the posture in the bath as comfortable as possible. A cloth wrung out of ice-water is placed upon the patient's head, and with a small sponge the head and face are kept bathed with the same water. You see here an unusually docile patient, who takes the baths without much protest, but, as you have just heard him say, he would prefer them warm. Systematic friction is now applied to the skin either with the hand or by means of a cloth or India-rubber rubber, which for convenience may be attached to a stick. The friction is rightly regarded as a very important element in the treatment, though, as you hear from this patient, he does not at all like it, and prefers to be left alone. Curiously enough, Hippocrates laid stress upon this very point when he said: "But the person who takes the bath should be orderly and reserved in his manner, should do nothing for himself, but others should pour the water upon him and rub him." The abdomen should not be rubbed. While the patient is in the bath, the bed is prepared for his reception with a rubber sheet, a blanket, and over these an old linen sheet. (After remaining in the bath for twenty minutes the patient was lifted out.)

I am glad that you have witnessed the little *contre-temps* in lifting this patient out of his bath. You see that he is a strongly built, heavy man, and the orderlies were only just able to lift him from the bath to the bed, and you saw that in doing so there was some little difficulty, owing to the catching of one arm on the side of the bath. This, however, does not very often happen, but now and then patients complain of scratches in the process of lifting in and out of the bath; and though done, as you see, with the greatest possible care, these little accidents are liable to happen. The man is now well wrapped up in the sheet, which is tucked in between the arms and legs, and brought well around the neck. Over this the blanket is placed. In cases in which the temperature is very high the patient may remain in the sheet for from five to ten minutes, but under other circumstances he may be carefully dried at once. You see that this man retains a good color in his face; the extremities are cold but not livid; and he is now beginning to shiver. Very often this shivering is distressing while in the bath, and one of the most unpleasant features of the system. If the patient is very cold and the shivering is extreme, hot bottles may be applied to the feet and at the sides. You see by this two-hourly temperature-chart the influence of the baths; and half an hour after this the temperature will be taken again, and the record made. If at the end of three hours the temperature is again above 102.5°, he will have another bath such as you have just seen. Now, before the patient is wheeled out, he will be given two ounces of hot milk with a little whiskey.

Practically what you have seen in this case is the routine of our treatment. The patients receive no medicine other than the alcohol, and that we do not give as a matter of course, but as a rule only, before and after the bath. In other cases, when the heart becomes feeble, we give strychnine, and in some cases digitalis and ether. The effects of the baths are: first, to reduce the fever, principally by favoring heat-dissipation and by the direct action of the cold water upon the blood that circulates in the superficial vessels; secondly, as a general tonic to the nervous and circulatory systems. Perhaps the most striking effect is seen in the lessening of the nervous irritability, the favoring of sleep, and the clearing of the mind. In patients treated early by this method we rarely see the dry tongue, muttering delirium, the subsultus, and the other grave nervous phenomena which are of such serious import in typhoid fever. The baths, too, appear to improve the general nutrition, and the patients take their food better, digest better, and, as has been said, the vital processes all seem more active. Do not suppose, however, that you can, as Brand enthusiastically says, keep the patient in an almost afebrile condition. An inspection of any series of carefully-taken charts will convince you that this is an impossibility; the temperature rises again in a variable space of time, and in some instances the influence of the bath upon the rectal temperature is extremely slight.

An important question is, Shall we bathe all cases indifferently, whether the temperature reaches 102.5° or not, and whether grave or mild? When the temperature does not reach the point indicated, if the patient's condition is good and there are no nervous symptoms, the baths are not ordered. This has been our practice during the past two years, and I do not know that we have in any case had cause to regret it. Of course, we do not here often see patients before the seventh day, but occasionally, as in the man in bed 3 in ward F, we do find cases in which the temperature is very low on admission, scarcely 100° or 101°, while subsequently the fever becomes very pronounced. Now, in the very case in question, the man has subsequently had a sharp attack of typhoid fever, but we did not bathe him when his temperature was low for the very good reason that we did not think he had the disease. On the other hand, in doubtful cases in which the fever is 103°, we have no hesitation in ordering baths, and have frequently bathed patients who subsequently proved to have pneumonia or malaria.

The contra-indications are as follows: Hemorrhage from the bowels, not because the cold baths tend to increase the hemorrhage, but because they interfere with the essential element in treatment, namely, rest. You have seen within the past week in the patients in beds 20 and 24 that the baths were omitted on account of hemorrhage. In the extreme debility of the last stages, in protracted cases with running pulse, it is advisable to omit the baths, though we do so with reluctance; but in many cases it has seemed wise, particularly in cases admitted in the third week, or admitted in relapse. Often in a day or two the condition is improved sufficiently to justify the use of the method. Neither pneumonia nor bronchitis is regarded as a special contra-indication, and pleurisy, only when the pain is severe Of course, the baths must be omitted when there are signs of perforation.

We use the bath-treatment and advocate it because by it the mortality in typhoid fever has been reduced so remarkably in hospital work that its employment seems imperative for the saving of lives. You can for yourselves read and compare the statistics in the different

hospitals which are given in two special works on this method now available for practitioners in this country—one, *The Hydriatic Treatment in Typhoid Fever*, by Dr. Sihler, of Cleveland, formerly a Fellow of the Johns Hopkins University; the other on the *Use of Water in Modern Medicine*, by Dr. Simon Baruch, of New York. These little books should be widely read by the profession. They are timely contributions to a subject that has not yet reached the daily lives of the doctors in this country. Practically, the mortality under the cold-bath treatment in hospitals has been reduced from 15 and 20 or 25 per cent., to an average of 6 or 7 per cent., taking all cases, or even very much lower if the cases are seen early. Indeed, Brand has figures that show an absence of mortality in some 1200 cases in which the treatment began before the fifth day. But in hospital practice we can never expect to see our patients before the end of the first week. At the German Hospital in Philadelphia, where the method has been followed most accurately by Dr. J. C. Wilson and his colleagues, there were ninety-four consecutive cases treated without a death; but I understand from Dr. Wilson that this remarkable good fortune has not continued, though the mortality has been kept at a very low rate. Our own more limited experience is also strikingly in favor of the method, and a report is in course of publication dealing with the first hundred cases so treated. In the first year of the opening of the hospital there were thirty-two cases treated on the symptomatic and expectant plan, of which eight died, a mortality of 25 per cent., a rate unusually high even for a general hospital. The cases, however, were of unusual severity; one had acute hemorrhagic nephritis, with profuse hematuria; one case, admitted at the beginning of the third week, had extensive double pneumonia. Two cases died of perforation, while another case died of profuse hemorrhage from the bowels. On the other hand, in the first hundred cases treated by the cold baths, the mortality has been only 7 per cent., a reduction so striking and remarkable that it must be attributed to the good results of the bath. Even this rate of mortality, which is about the average for hospitals in which the rigid Brand system is carried out, would be considered by the proposer of the method far too high. In the report referred to I have given full details of the fatal cases, and it will be noticed that one of the eight, an old man of seventy, was admitted late in the disease with extensive lobar pneumonia, and as the disease was not recognized as typhoid he was not bathed. Two cases were admitted in relapse.

You will be pleased to learn that in the cases treated this year we are still gratified with the results of the method. We are at about the seventieth case in our second series of a hundred cases, and only six of these have died.

Lastly, of special interest to you as practitioners, comes the question, How far is this method available in private practice? I have been rapped over the knuckles, so to speak, for saying that in private practice it was scarcely feasible, but I suppose it is more correct to say that in this, as in other matters, where there is a will there is a way, and if the practitioner insists and has the courage of his convictions, the method can in many cases be carried out at home. It is very interesting at this point to know Dr. Sihler's experience in private practice, and I would recommend the careful perusal, by practitioners, of Appendix A of his little manual. Really the chief obstacle to-day is that of which Hippocrates complains, when, in speaking of the bath, he says: "Sometimes it must be less used than it would be otherwise, from the want of accommodation; for in few families are all the conveniences prepared, and persons who can manage the baths as they ought to." Portable tubs, however, are now available, and with a good nurse, intelligently assisted by one or two members of the patient's family, the practice can be successfully carried out. There is now, moreover, a much stronger feeling in the profession in favor of hydrotherapy, and the practitioner can at least get the moral support of his colleagues. Still there are difficulties, which can, however, be overcome with care, patience, and a little tact. My preceptor, Dr. R. P. Howard, in Montreal, used to tell a story which rather set the younger ones among us against the Brand method. Early in the "sixties," shortly after the publication of Brand's paper, Dr. Howard, in his lectures on typhoid fever, had given the full details, and had spoken of the remarkable results obtained by Brand. One of his pupils, a year or so later, practising in a small town in Western Canada, had faith enough in his teacher and in Brand, to use the cold bath in a very severe case of typhoid fever, which occurred in one of the prominent families of the town. The poor patient promptly died after the bath, and the young physician felt so chagrined, and the feeling against him was so strong, that he left the town. Such an accident, however, is a very remote contingency, and one that need scarcely be taken into account in discussing the advantages and disadvantages of the cold-bath treatment in typhoid fever.

Do not, however, underestimate the troubles that you will encounter in introducing this method into family practice. I have here a letter from one of my old University Hospital house-physicians, an extremely careful and able practitioner, who has been using the cold bath very faithfully, and in speaking of one case he says: "The prayers, entreaties, supplications, and last but not least effective, the lusty yells of this girl at each bath were such as not to materially increase the repose of the neighborhood or strengthen to any great extent the *morale* of the family."

We have been congratulating ourselves during the past two or three months that our numerous cases have been doing so satisfactorily, but yesterday one of the inevitable accidents occurred which, in general hospitals at any rate, must continue, in spite of Brand's statements, to occur occasionally and maintain some mortality, at any rate, in typhoid fever. The patient, admitted about the seventh day of his illness, was a strong, well-built, healthy man, aged thirty-seven. He was bathed from the time of his entry, and had had about forty baths. The day before yesterday the pulse was feeble and rapid after the bath, and it was thought advisable to order the baths to be discontinued. There was a little tenderness in the abdomen, but nothing very striking. Yesterday, as some of you saw, the signs of perforation were well marked, and of this he died. I show you here the small intestine, and you will see a somewhat unusual and remarkable picture. There is a small slough near the ileo-cecal valve, and there are two or three small ulcers in the first half above the valve.

There are also one or two swollen solitary follicles, but there are also several patches which show simply the shaven-beard appearance, and the lymph-elements are not themselves specially swollen. At a distance of 30 cm. from the valve there is a small perforation, resulting from the extension of a small, deep slough through both muscular coats. Higher up there are one or two small ulcers, not larger than peas, and above this there are Peyer's patches uninvolved, with scarcely any infiltration. The spleen is very much enlarged and soft. Here was a patient, without extremely high temperature, bathed from about the seventh day, with every favorable indication, and as the autopsy showed, extremely slight ulceration in the ileum, and yet, owing no doubt to local conditions in the limited area involved, the necrosis had extended deeply, and passing through both muscular coats, the inevitable perforation occurred, with fatal peritonitis.

CLINICAL MEMORANDA.

THREE CASES OF AMEBIC DYSENTERY.

BY H. F. HARRIS, M.D.,
OF ATLANTA, GA.

OUT of a series of seven cases of chronic dysentery, recently examined, amebæ were found in the stools of the three whose histories I give below.

CASE I.—G. A. M., aged thirty-six years, white, a civil engineer, a native of Connecticut, was first seen by me on October 2, 1891. He had never been sick up to three years ago, at which time he moved from the State of New York to Chattanooga, Tenn.; shortly after his arrival at the latter place he was taken sick with an acute attack of dysentery, but fully recovered from the disease in about ten days. After leaving Chattanooga he lived in various parts of middle and southern Alabama, until coming to this place eight months ago. At the time of the beginning of his illness he had, and he has since, during working hours, used water from a well.

The present illness began last June with an acute attack of dysentery; the disease has continued since, with occasional remissions and exacerbations, but at no time has it been so severe as at present. Though really unfit for labor of any kind, he had continued at his work up to the day before I was called; at that time his condition was as follows: Appetite fairly good; prostration very great; bowels loose, and from twenty to forty stools passed in twenty-four hours. Suffered with fever, thirst, constant backache, and a deep tearing pain across the upper portion of the abdomen. Physical examination showed that he had evidently lost much flesh; his cheeks were shrunken, and the limbs and trunk were extremely emaciated. The skin was pale and slightly jaundiced, the tongue clean and moist, but slightly reddened at the tip. The temperature was 100° F., pulse 92, and respirations 20. The heart, lungs, liver, and spleen were found normal. The urine was scanty, and contained neither albumin nor sugar. The abdomen was tender, but not at all distended. The stools were watery, usually of a dark-brown color, and very offensive. On microscopic examination there were found pus-cells, red blood-corpuscles, large, round, granular epithelioid cells, multitudes of bacteria, and numerous actively-moving amebæ. Microscopic examination of the sputa was negative.

Rest in bed for a month was ordered, and a diet of egg-albumen and milk, stimulants being added when deemed necessary. A great general improvement followed, as well as a marked amelioration of the dysenteric symptoms. During the last few days of his rest the number of stools was not greater than three or four in twenty-four hours; but, on resuming work, the number quickly increased to the present average of from ten to fifteen in the same length of time.

CASE II.—Mrs. D., aged twenty-four years, white, married, a native of Tennessee, was first seen by me on October 25, 1891. Three years previously she had moved from her home in Tennessee to this city, where she has since resided. The house in which she has continuously lived since coming here is situated in a not unhealthy suburb, the only source of water-supply being, however, a surface well. The patient had been in perfect health up to ten weeks before, at which time an acute attack of dysentery set in. The movements at first were frequent, painful, and contained blood and mucus; subsequently the pain grew less severe, and the number of stools decreased, but the disease has continued, sometimes being worse and then better, to the present time. When I first called to see her she, being very weak, was confined to bed. Her appetite was poor, and she suffered with fever and frequent prostrating sweats; her stomach was irritable, the small quantity of food taken being often vomited. The bowels were evacuated, on an average, once an hour. She had lost much flesh. Physical examination showed that she was thin, the skin yellow, the tongue pale, flabby, and slightly coated; the temperature was 102.1° F., pulse 98, and respirations 26. The heart's action was weak; over the mitral region there was a soft, blowing, systolic murmur. The lungs and liver were normal. The urine contained neither albumin nor sugar. The abdomen was tympanitic, but not greatly swollen; along the course of the colon it was quite tender. The stools were of a dark-brown color, watery, and exceedingly offensive. On microscopic examination they were found to contain pus-cells, red blood-corpuscles, large, round epithelioid cells, many cercomonas, and numerous, very active amebæ; multitudes of bacteria were also always found. Amebæ were never found in the sputa.

During the week that followed my first visit the patient slowly grew worse. The temperature, though remaining constantly above 100° F., was very irregular; it usually reached its lowest point in the early morning hours. Each day the pulse became weaker and more rapid. The exhausting diarrhea continued practically unabated, and by far the greater portion of food taken was at once vomited. At my last visit the patient was only partially conscious, and the nervous system had for several days previously given evidence that it had suffered greatly in the general breakdown. The patient's family having become dissatisfied, other professional assistance was called. I learned later that the woman died on November third.

CASE III.—Katie B., aged thirty-four years, a mulatto, consulted me at my office on December 19, 1891. Although a married woman, she has earned her livelihood for a number of years, as a washwoman. She

was born and reared in middle Alabama, but for the last fourteen years has resided in Atlanta. Her home here is in a low, damp, and by no means cleanly situation, and is in close proximity to what has been, until very recently, an open sewer. The drinking-water is obtained from a shallow well within a few feet of the house. In the month of July, 1890, she was taken sick with an acute attack of dysentery; in a few days the more severe symptoms subsided, but the stools continued loose and somewhat more frequent than in health. Although the number of stools was markedly increased by physical exertion, she continued her usual occupation for six months after coming under my observation. Her appetite has remained fairly good; with the exception of a few restrictions as regards certain articles of food, her usual diet has not been interfered with—her circumstances being such that a milk or egg-albumen regimen was impracticable. She has pains in the back and lower part of the abdomen, occasional headaches, and complains of great weakness. The number of stools passed in twenty-four hours varies widely—sometimes there being not more than two, and, again, twenty or twenty-five. At night the feet are usually somewhat swollen.

When first seen the patient was a large, well-developed, and very healthy-looking woman, but during my subsequent observations, extending over a period of nine months, she steadily lost flesh, along with the gradual impairment of her general health. The tongue was moist and flabby; the temperature varying between 99° and 100° F., the pulse usually about 80, the respiration normal. The heart, lungs, liver, and spleen presented no abnormalities. The urine was of the usual color, acid, sp. gr. 1020; it contained no albumin, but at times a trace of sugar. The abdominal wall was thick, and well rounded; pressure over the region of the left half of the transverse and descending colon elicited tenderness. The stools were offensive, yellow, semi-solid, and contained but little mucus. On microscopic examination they were found to contain much undigested food, pus, red blood-corpuscles, large epithelioid cells, and a few sluggish amebæ. Examination of the sputum was negative.

An analysis of the symptoms in the foregoing cases shows—notwithstanding the fact that we have in one an example of the severest, and in another the mildest form of the disease—a marked similarity in all, and at the same time they do not in any essential particular differ from cases of the kind reported from various parts of the world. The percentage of uncomplicated cases is certainly here, as yet, much greater than has been observed in other parts of this country, but, from such a limited number of unfinished cases, any general conclusions would, of course, be premature. It is unfortunate that, in the only case in which the actual conditions could have been definitely ascertained, an autopsy was impossible, but there existed no evidence leading to the conclusion that there was either pulmonary or liver involvement.

The amebæ were from 0.020–0.030 mm. in diameter, and they contained many vacuoles, much granular matter, and sometimes microörganisms; it was never possible to definitely make out either nuclei or contractile vesicles. The movements of the amebæ were never rapid—often extremely slow; though they usually became inactive in from twelve to eighteen hours after having been passed, they were upon several occasions observed alive after twenty-four hours' exposure to the temperature of the room, which, during the night, probably went down to 35° or 40° F. Their number and activity would seem to correspond with the severity of the disease. No further description of the amebæ is deemed here necessary, as they would in all other particulars answer to the several excellent descriptions which have at various times appeared in THE MEDICAL NEWS.

The treatment pursued in the three cases was essentially the same. Rest, so far as it was practicable, was enjoined. The only foods allowed were milk and egg-albumen. When thought necessary, alcoholic stimulants were freely given. Instead of ordinary well or hydrant water, the waters of the Rockbridge, Virginia, alum springs were substituted, on account of their reputation in the treatment of the chronic dysenteries of this climate; no improvement having followed after a thorough trial in either case, their use was abandoned. Opium, silver nitrate, copper sulphate, bismuth subnitrate, salol, sulphuric acid, and tannic acid—the latter in solution by enemata as well as by the mouth—were all tried, but with no marked effect. Pepsin was given with the hope that it might favorably influence the disordered digestion, but was followed by no appreciable benefit. Although it is true that while under the influence of opium the number of actions decreased, and also that both the tannic and sulphuric acids, for a time, unquestionably caused a decrease in the number of stools passed, the good effects never persisted after their discontinuance.

On account of its alleged amebacidal action an injection of a quart of a 1 to 2500 solution of quinine sulphate in ice-water was given in Case I for two weeks, and in Case II for three days, once daily, with no benefit, and without affecting the number or activity of the amebæ found in the stools. After having failed to obtain any positive result from quinine sulphate injections, I began a series of experiments for the purpose of ascertaining to what degree the amebæ, as found here, were susceptible to the toxic action of the salts of quinine, and to that of other poisons which could be safely used in rectal injections. Up to the present time my experiments have not been sufficiently numerous to justify any definite conclusions, but enough has been done to cause me to doubt the possibility of killing the amebæ with either ice-water or even saturated aqueous solutions of quinine sulphate, in any reasonable length of time. Of the various substances experimented with, none has been found which was at the same time so toxic to the amebæ and so innoxious as quinine bisulphate, which in a 1 to 300 aqueous solution always, within ten minutes, caused the death of the amebæ. Injections of one quart of water holding in solution a dram of quinine bisulphate were given in Case I for two, and in Case II for three successive days; each injection was retained thirty minutes. They were abandoned in Case I for the reason that the pain which they produced was intolerable, and in Case II on account of the hopeless nature of the case. Following the injections the temperature would fall from 1° to 2° F., and the phenomena of cinchonism always developed. No decided improvement followed in either case, but the number of amebæ was undoubtedly diminished.

A LARGE AORTIC ANEURISM.

BY F. J. SHADD, M.D.,
HOUSE-SURGEON TO THE FREEDMEN'S HOSPITAL, AND PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS AT HOWARD UNIVERSITY MEDICAL COLLEGE, WASHINGTON, D. C.

THE case that I herewith report was under my care several times during the past four years. The aneurism is one of the largest, if not the largest, on record in the Medical Museum, at Washington.

The pathology of thoracic aneurism has received most careful consideration. The subject is of special importance to the clinician, who often finds it difficult to locate the exact portion of the thoracic aorta from which the aneurism springs. As a rule, aneurisms of the aorta are confined to the ascending portion and to the arch.

Sometimes the carotid, the innominate, and the subclavian arteries may be severally involved. It is not my purpose to write an exhaustive article upon the etiology, pathology, and treatment of aneurism of the aorta, but it is well to remember that aneurisms are divided into (1) true aneurisms, in which all three coats of the vessel are involved; (2) false aneurisms, in which only the inner coats are destroyed; (3) diffuse aneurisms, in which the three coats give way and the walls of the blood-sac are made up of the surrounding structures. The causes of aneurism are various, viz., chronic inflammation of the arterial walls, fatty degeneration, atrophy, and violent exertion. Among the diseases that lead to its development may be mentioned rheumatism and syphilis.

The disease is one of middle age, and males are more often affected than females, because of the exposure to which they are subjected, and the violent exertion in which they engage. The diagnosis is often very obscure, by reason of the lack of uniformity of the symptoms and also from the anatomy of the parts. Sometimes there is severe pain in the cardiac region, swelling and throbbing of the vessels, fulness and weight in the chest, in addition to marked dyspnea. The position and growth of the aneurismal sac often modify the chest-symptoms.

In the case to which I desire to call attention, a correct diagnosis was made when the patient first came under my care some four years ago, when the aneurismal sac was not prominent and many of the symptoms and physical signs were negative.

The man was first admitted to the Freedmen's Hospital October 24, 1888, and was discharged January 15, 1889. Several times during the past four years he has received treatment for the severe pain in the chest and shortness of breath. He was last admitted to the hospital on August 15, 1892. He died October 1, 1892. The tumor had grown much larger and his condition was very critical. I learned that the man left Algiers in 1861, enlisted as a sailor and had followed the water for more than thirty years. His weight was 225 pounds, height 5 feet 10 inches; he had been married fourteen years, and had five living children. He stated that his age was seventy-eight, and that he was born in Algiers; he also stated that his health was always good until after lifting heavy loads on shipboard. One day he felt a sharp pain over the heart, after which he had asthmatic attacks. The tumor that presented measured eight inches vertically, nine inches transversely, and eleven inches obliquely. When last admitted the man was suffering from marked and persistent asthmatic attacks which responded to the usual treatment, viz., Hoffman's anodyne and morphine. His general health was good and he was remarkably well nourished for a person who had been seriously ill for four years. He was large and muscular, a man of great strength, a fact well demonstrated when we tried to control him during one of the severe paroxysmal attacks that periodically recurred. His physical condition was so good that even the intense suffering during the many months of his former illness had made but slight impression on his general health. His mind seemed slightly affected, and yet by reason of his foreign accent and some other peculiarities common to people of his country, I was often at a loss to know how much of his private history to believe. Several times he impressed me that there must be some cerebral irritation not due to reflex influence of the heart-disease. When questioned about his parents, he informed me that his father had died ten years previously; that he was the twenty-fifth child; that his mother was one hundred and fifty years old, and was now living. While at the hospital, a year or so ago, he would become very violent, would scream and run around the ward; and often he would boast of his cannibalistic feats in years past, when American citizens appeased his appetite in the wilds of his native home.

During his stay at the hospital the last time he was under my especial care. In the paroxysms from which he suffered his pain was intense. The last month of his life was made as comfortable as possible by the judicious use of Hoffman's anodyne and potassium bromide during the day and morphine at night.

Even under the influence of these drugs he was unable to rest in bed, and spent most of his time sitting in a chair and leaning over a pillow on the back of another chair, thus relieving the lungs of the pressure of the aneurism.

Dyspnea, however, became more pronounced, and progressed in intensity until death ensued.

The post-mortem examination was made by Prof. D. S. Lamb, of the Army Medical Museum. I am indebted to Mr. J. A. Robinson, Jr., for the report of the examination.

An incision in the middle line below the ensiform appendix disclosed an edematous condition of the tissue, as well as certain hard abnormal tissues extending from the site of the aneurismal sac to near the region of the axillary space.

The lungs were generally adherent.

Several ribs were found to be eroded in consequence of the long-continued pressure by the sac.

The liver was bound by old adhesions. The organ was small; its vessels were congested and their walls considerably thickened.

The left lung was found to be a little edematous. The upper portion was divided into three small lobes. Some of the bronchi were filled with yellowish pus.

The heart was enlarged. There was considerable thickening of the pericardium from an old pericarditis.

The aorta was greatly dilated and contained a large quantity of soft blood-clot.

The aneurismal pouch began just above the aortic

valve and involved the ascending and transverse portions of the arch of the aorta. The sac contained a mass of laminated or striated blood-clot.

The capsule of the spleen was thickened and adherent to the diaphragm. The organ appeared to be enlarged and was very dark.

The left kidney had a small cyst in its cortical substance, and on being opened, another small cyst was found within it.

The right kidney was normal.

The carotid arteries and innominate veins were patulous and not interfered with.

The sac detached and lifted out was a foot in diameter.

A large part of the sternum and several ribs on either side were entirely absorbed.

The growth of the pouch being forward, there was no pressure on the spine, which appeared normal.

The calvarium and the cerebrum presented no abnormality.

The cerebellum was anemic; its appearance was suggestive of some interference with its nutrition during life. This view was strengthened by a decided softening and breaking-down of the inferior portion of both lobes of the cerebellum. This fact furnished an explanation of the impairment of coördination that existed some weeks before death. No cause for the softening was found; this was supposed to have been due to some interference with the circulation through the branches of the basilar and vertebral arteries.

The immediate cause of death was suffocation from the pressure of an aneurism of the arch of the aorta upon the trachea.

LARYNGISMUS STRIDULUS, OR SPASM OF THE GLOTTIS, PROVING FATAL IN LESS THAN THREE HOURS.

BY F. M. GREENE, M.D.,
OF GREENE DALE, KY.

ON the night of November 5 I was called to see Lewis K., a boy nine years of age. At 11 o'clock his mother was awakened by his struggles for breath, and he was observed clutching at his throat. She attempted to administer an emetic, and in a few moments spasms came on and the patient was completely cyanosed about the face. Coma supervened, and it was found impossible to give the emetic. At half-past 1 o'clock I arrived and found that the patient had expired half an hour previously. The history of this case is as follows: From early infancy the boy had been subject to attacks of laryngismus stridulus, or "false croup." When three years of age he had an attack of membranous croup, from which he recovered slowly and with great difficulty. None of these attacks was regarded as diphtheritic, nor was any membranous deposit discovered in the throat or fauces.

After six years of age these attacks became less frequent, and at nine years he was supposed to have outgrown a tendency to the disease. During the week preceding the attack he had attended school, and on Saturday appeared as well as usual, playing about home with other children in the family. At 8 o'clock he took supper with the family, and after retiring to the family room was required by his father to show what progress he had made in his studies. After reading a short time he appeared drowsy, when his mother assisted him to bed. No symptoms of fever or hoarseness were observed at this time, about 9 o'clock.

There were three children in this family—the eldest a daughter of seventeen, now healthy, but who had been much subject to croup during infancy; the second, a daughter of three years, perished from an attack of membranous croup. The mother, a robust healthy lady, was not subject to laryngeal affections, nor was there any history of the disease during infancy. The father, on the contrary, has chronic laryngitis and suffers greatly during the winter months. The laryngeal mirror shows chronic congestion of the ary-epiglottic folds, with thickening of the vocal bands. So far as could be ascertained, there is no history of pulmonary tuberculosis or of syphilis in his family.

In this case there was no rigor mortis when I arrived. The appearance of the child indicated that he had struggled violently. A post-mortem examination was refused, and I remained in some doubt as to the diagnosis. It was not probable that any foreign substance had gotten into the larynx and thus suddenly produced suffocation, nor could it be clearly pronounced edema, which is believed to be seldom, if ever, idiopathic. Edema of the larynx usually follows some disease or injury of the larynx or neighboring structures. The intelligence and watchfulness of the mother, who at all times was prepared with the ordinary remedies to treat simple laryngitis, would disprove the idea that the attack was insidious or was preceded by any marked inflammatory symptoms.

In Pepper's *System of Medicine*, under the prognosis of laryngismus stridulus, it is said that: "The large majority of cases of spasm of the larynx recover. Statistics show that there are deaths from this disease, but in proportion to the number attacked the mortality is small, how small we do not know." I have notes of a similar case that occurred a few years ago, and the patient lived less than three hours from the time of the actual attack. Inflammatory symptoms had preceded the attack for six hours, and there was complete cyanosis when I arrived. An attempt was made to produce emesis by tickling the fauces, when the patient suddenly expired from asphyxia. It is in these desperate but fortunately rare cases that the physician feels that "his arm is shortened" and his efforts futile.

The pressing indication in these cases is to relax spasm, and this may be accomplished, first and foremost, by heat, emetics, anesthetics and antispasmodics. Ordinarily we have time sufficient for some of these remedies to act. In cases of great dyspnea with cyanosis, anesthesia must be of doubtful expediency. It seems that tracheotomy would offer the only hope in such cases, but the operation is usually not resorted to until other remedies have failed or the emergency is great and immediate.

REDUCTION OF GOITER BY THE FARADIC CURRENT.

BY W. H. F. MILLER, M.D.,
OF CLIFTON FORGE, VA.

HITHERTO the faradic current has not been much noted as a means of arresting pathologic processes, but it may be possible that it shall serve this purpose,

and investigation may prove that in certain cases it will be more serviceable than the constant current. There are several objections to its use, including pain and the effect on nervous patients caused by the noise of the interrupter; but in the case I now report I must think that the desired effect was produced more quickly than would have been possible by fifteen or twenty cells of galvanic electricity.

Miss R. A., seventeen years of age, consulted me for trouble with her throat, complaining of continual pain and a choking sensation. Laryngoscopic examination gave negative results, as there was no apparent laryngeal or pharyngeal affection. She stated that she had been under the care of two physicians for about a year, and had had gargles, sprays, and tonics prescribed without any appreciable benefit. She assured me that she was getting worse all of the time. In making an examination of the throat I perceived a distinct tumor in the thyroid region, and on questioning her she stated that it had always been there since her throat troubled her, and she attributed it to the throat-affection. Both lobes of the thyroid glands were enlarged to the size of a small hen's egg.

During three months I prescribed an ointment of aristol and lanolin, with arsenic and potassium iodide internally, with no benefit. Then, having no galvanic battery, I determined to try the effect of the faradic current. I stopped all medicine and applied the positive pole over the isthmus and the negative pole to the right side of the tumor, and turned on the current for twenty minutes. The result at first was not gratifying, as the right side was appreciably larger after the application than it had been before. I told her, with some misgivings, to return in two days. On her return I found the right side considerably decreased in size, but the left lobe, if anything, larger. I applied the current to the left side, and on the next visit there was a visible decrease in the size of the tumor. After that I applied the current through the whole gland, applying the positive pole to the outside of the left lobe and the negative to the corresponding side of the right. After four applications of twenty minutes each, using as strong a current as could comfortably be borne, the whole tumor had disappeared, and there has been no return up to this time (six weeks).

There was no cauterant action upon the skin, but at first a deep red line extended across the neck from left to right, quickly spreading over the adjacent surface, disappearing in about half an hour after cessation of the treatment. Only six sittings were needed to reduce the whole tumor, which had not yielded to the usual internal remedies. It may be that investigation of the faradic current for such purposes may prove of value. I used a two-celled Manhattan battery.

NEW DEVICE.

"THE ANTISEPTIC DROPPER."

BY GEORGE M. GOULD, A.M., M.D.,
OPHTHALMOLOGIST TO THE PHILADELPHIA HOSPITAL.

ALL ophthalmic surgeons, as well as most physicians, daily experience the constant annoyance and the impossibility of keeping droppers or medicine pipettes clean, and of having each one properly attached or only used in the same bottle. The solutions kept in the bottles are soon spoiled by dust, penicillium, etc., carried into the bottle by the dropper. As commonly used, the dropper is not cleansed and rendered aseptic each time prior to inserting it in the solution, but is in fact washed out with, and again into the solution, every time it is used. Many devices have been made in the attempt to avoid all this, and to keep each dropper with its appropriate bottle. It need not be said that all have proved failures, and the vexation, the expense, and the slovenliness, the fouling and the septicizing of solutions, is a thorough "weariness to the flesh."

I have hit upon a method that I am sure "supplies the long-felt want." This, in brief, is to combine the dropper and the glass-cork in one piece of glass. The long fine point of the dropper, straight or curved, and of any length desired, or according to the bottle-height, is made the same as the best style of the droppers in common use. The bulbous or tubular enlargement of the dropper is made of a sufficient thickness of glass to admit of its being ground so as to fit the neck of the bottle accurately, just as the ordinary glass-stopper does, and is of course used in place of any other stopper. This bulbous enlargement extends far enough above the lips of the bottle to serve as a grasping place for the finger and thumb, and upon this is fitted the rubber bulb exactly as is the common dropper. In this way cork and dropper are united in one handy and serviceable little instrument.

The use of the principle of the "mizpah dropper" may be preferred by some, as by the valve of this instrument the liquid is prevented from entering the rubber bulb. But this is unnecessary if one is careful to keep the point of the pipette downward so that the solution does not come in contact with the upper part or rubber bulb of the dropper. With a little dexterity only the few drops required may be allowed to enter the pipette of the common dropper, and the solution need never reach or come in contact with the rubber.

By changing the shape of the rubber bulb, so that it shall be round or flattened instead of oblong, only the index-finger is used to compress or depress it, and thus expel the solution, whilst the thumb and second finger hold the dropper below. By properly limiting the size of the rubber bulb, it can be made possible to suck up only the single drop, or the few drops desired.

Perhaps the simplest and, after all, the most effectual, plan is to stretch a flat, flexible membrane of rubber across the expanded bulbous open top of the dropper like a drum-head, and by depressing this with the index-finger the few drops required are sucked into the point of the pipette or expelled from it. The device is so easily understood that no illustration seems necessary.

Upon the top of the rubber bulb or of the flat membrane may be written the number of the bottle to which it belongs, the chemical name of the solution, etc., corresponding to the proper bottle.

I have requested Messrs. Whitall, Tatum & Co., of Philadelphia, to manufacture and supply the "antiseptic dropper."

Professor Verneuil has retired from the chair of Surgery in the Paris Medical Faculty which he has for so long and so creditably occupied.

MEDICAL PROGRESS.

Pneumotomy for Pulmonary Abscess —ANDREWS (*Chicago Medical Recorder*, vol. iii, No. 7, p. 537) has reported the case of a man that for fifteen years had presented the signs of consolidation of the right lung with subsequent development of an abscess. There were cough, copious fetid expectoration, anasarca, emaciation, diaphoresis, exhaustion. Neither spirals nor tubercle-bacilli were found in the sputum. To relieve the immediate distress by the least severe operation, simple drainage was attempted. The trocar failed to find pus in the pleural cavity, which was apparently obliterated. A deep puncture was made over the cavity at its most resonant point. At the depth of three or four inches calcareous obstruction was encountered and a large cavity entered. This was cut down upon between the sixth and seventh ribs in the anterior axillary line. The pleura was found completely adherent. The hemorrhage was pretty free until the drainage-tube was introduced, but it soon ceased. Comparatively little pus appeared until the following day. The sputum now lost its purulent character, while a large amount of pus escaped from the wound. Rapid general improvement took place. The patient was able to be about. The appetite improved. Pyrexia and cough largely disappeared. After four months the chest had greatly collapsed. The intercostal spaces became so narrowed that the drainage-tube was compressed and the discharge was interfered with. It was now decided to perform subperiosteal resection of the ribs, and the fourth, fifth, sixth, and seventh ribs were resected in the mid-axillary line. The pleural cavity was found to be entirely obliterated, the pleura being three-eighths of an inch thick. An incision was made, entering the middle lobe of the lung, and opening a large cavity that extended upward and backward, and the walls of which at the point of incision were an inch and a half thick. The cavity apparently had a capacity of two pints, and communicated with a bronchus posteriorly. The hand was introduced into the wound and a large calcareous accumulation encountered. This was in part removed and the wound was dressed open, being packed with gauze, which was removed at the expiration of forty-eight hours. The primary result of the operation was encouraging. Temperature and pulse declined; chills and night-sweats ceased; the appetite improved. The cavity discharged freely at first, the amount gradually growing smaller.

Ulcerative Endocarditis in Conjunction with Gonorrhea.—HIS (*Berliner klin. Wochenschr.*, 1892, No. 40, p. 994) has reported the case of a man, nineteen years old, who had an attack of gonorrhea that yielded in the course of three weeks to injections of mercuric chloride 1:4000. At no time was there special difficulty in micturition, pain in the perineum or testicles, palpitation of the heart or shortness of breath. A short time later an attack of syncope occurred. Two nights after this the man had to ride a considerable distance; during the journey he complained of feeling cold; on the following morning he had a distinct chill. The urethral discharge returned. No abnormality of the heart or lungs was detected. Three days later, numerous red spots, that disappeared upon pressure, appeared upon the face, the forearms, the hands, the legs, the feet, and the trunk. Examination again failed to disclose the existence of a heart-lesion. The temperature soon rose to 104°. More red spots appeared over a wider distribution, some being hemorrhagic. The glands below the right angle of the jaw became enlarged. The area of cardiac percussion-dulness was now found to be increased, while a loud, blowing systolic murmur was to be heard over the apex and the pulmonary artery, but with greatest intensity over the aorta. There was no involvement of the joints. The urine was excreted in unduly large amounts, but contained no abnormal constituents. Hearing became impaired; the sensorium became obscured; profuse perspiration occurred; a new crop of ecchymoses appeared; the patient gradually failed, and death took place from heart-failure. At the autopsy, the aortic semilunar leaflets presented the lesions of ulcerative endocarditis. The heart was enlarged. At the apex of the left ventricle was a softening, puriform thrombus. The pubic plexus of veins contained old thrombi. The left kidney and the spleen presented numerous infarcts. There were small hemorrhages in the liver, in the testicles, in the lungs, in the prostate, in the cerebellum, in the medulla oblongata, beneath the skin, and beneath the serous and mucous membranes.

Twin Pregnancy; One Fetus Developed Within, the Other External to the Uterus.—MARTIN (*Omaha Clinic*, vol. 8, p. 259) has reported the case of a woman, forty years old, who had already borne three children and had one premature labor, and who became again pregnant. In about the tenth week of the gravidity the woman presented symptoms suggestive of the existence of septic peritonitis. There was considerable prostration, with exquisite abdominal tenderness. For two weeks there had been considerable metrorrhagia. By rectal and vaginal examination the gravid uterus was found to be retroverted and impacted. By placing the patient in the knee-chest position the displacement was corrected and her condition was soon much improved. On assuming the erect posture the right lower extremity became greatly swollen. Slight hemorrhage from the uterus continued to take place. After the lapse of three months symptoms of labor appeared. In the course of a few days a five-and-a-half-months fetus was expelled. Soon afterward the patient stated that she felt quickening, and by palpation fetal movements could be perceived. Rather more than a month later the patient was seized with excruciating pain in the abdomen and the symptoms of peritonitis, and died. At the post-mortem examination it was found that an extra-uterine gestation-sac had ruptured into the abdominal cavity, setting the product of conception free. The chorion had formed numerous adhesions with the wall of the abdomen and with the viscera. The umbilicus was bifurcated and led to two placentæ, one attached to the folds of peritoneum about the left broad liagament, and weighing about three or four ounces; the other attached to the peritoneum of Douglas's pouch and weighing two or three pounds.

Toxalbumins in the Matters Vomited by Cholera-patients.—Having already demonstrated that the poison introduced by the bites of venomous snakes is eliminated by

the mucous membrane of the stomach, ALT (*Deutsche medicin. Wochenschr.*, 1892, No. 42, p. 954) made a study of the matters vomited by cholera-patients, to determine if these matters contained toxalbumins. For this purpose, vomited matter as free from food as possible was obtained from recent cases of cholera and doubly filtered. The filtrate was treated with thrice its volume of 96 per cent. alcohol. A flocculent sediment was deposited. The supernatant alcohol was decanted and the precipitate filtered. This precipitate was again suspended in 96 per cent. alcohol, filtered, and then dissolved in distilled water. Three volumes of alcohol were now added and the mixture filtered. The alcohol was evaporated and the residue dissolved in distilled water. The subcutaneous injection of small quantities of this solution in rats, guinea-pigs, and dogs was followed by spasm, paresis, depression of temperature, apathy, and death. Degenerative changes were found in the liver, kidneys, and spinal cord. The precipitate obtained responded to tests for toxalbumins. The vomited matters of persons not having cholera failed to yield a corresponding product. The conclusion is arrived at that the precipitate represents the toxic products of the activity of the cholera-bacilli in the intestinal canal, eliminated thus by the gastric mucous membrane. In a doubtful case the physiologic reaction of lower animals to the precipitate obtained from the vomited matters might prove of diagnostic value. Therapeutically, the indication is to employ systematic washing out of the stomach in conjunction with any other plan of treatment that may be instituted.

Recurrent Hemorrhage from the Ciliary Body, resulting in Cataract; Recovery of Vision after Operation.—At a recent meeting of the Philadelphia County Medical Society, ZIEGLER reported the case of a woman, twenty-one years old, in which in the course of the preceding nine years repeated hemorrhages from the ciliary bodies of both eyes had occurred. There was a history of dysentery, with intestinal hemorrhage, immediately preceding the first bleeding in the eye, followed by habitual constipation. Iridectomy had been performed on both sides, but vision remained poor. The right lens had become cataractous, but not calcareous; the left was transparent, except for a small central nebulous opacity in the posterior capsule; the left vitreous was disorganized. As it was thought that the transparency of the right vitreous was preserved, and as light-perception and projection were fairly good, the right lens was first extracted, capsulotomy being performed somewhat later. The result was most satisfactory, almost a normal degree of vision being restored to the right eye.

The Differentiation of the Bacillus Typhi and the Bacillus Coli Commune.—In addition to the various features already proposed for differentiating the bacillus typhi and the bacillus coli commune, LUKSCH (*Centralblatt f. Bakteriologie u. Parasitenkunde*, 1892, No. 13, p. 427) has found that the bacillus typhi has many cilia (from eight to twelve), while the bacillus coli commune has few (one, two, or three), and these are difficult to stain. The method of staining consists in first preparing the cover-glass specimens by heating them for a minute in a fresh, cold, saturated solution of ferric acetate containing 25 per cent. of tannic acid, and to every half-ounce of which from five to ten drops of acetic acid are added, washing in water, and then briefly in 20 per cent. acetic acid; after again being washed in water, the specimens are treated with warm aniline-oil fuchsin or aniline oil gentian-violet.

A Biologic Reaction from Cholera-bacilli.—BUJWID (*Centralbl. f. Bakteriol. u. Parasitenk.*, xii, 17, p. 595) proposes to utilize diagnostically the influence exerted by iodoform upon cholera-bacilli. He has found that if cholera-bacilli be well mixed in a test-tube with gelatin that is liquefied and then coagulated, and a small open tube containing iodoform be placed above the level of the gelatin, liquefaction does not occur for ten or fifteen days, while it ordinarily begins as early as the second day. The organisms that most closely resemble the cholera-bacillus are acted on similarly, but not to the same degree, liquefaction taking place much earlier. At temperatures at which gelatin liquefies the fluid remains clear when iodoform is employed, but otherwise becomes turbid.

Mercurialism.—PATTERSON (*Dental Cosmos*, xxxiv, 11, p. 904) contends that the inflammation and sponginess of the gums that occur, as well as the blue line that sometimes forms in the course of the therapeutic employment of mercurials, are not dependent upon the immediate action of the drug, but upon neglect in the care of the mouth. The discoloration he believes to be due to the deposition of calcic salts. To avoid unpleasant complications, without the necessity of withdrawing the medication or diminishing the dose of the drug, he recommends the careful removal from the mouth of all irritant matters and the institution of perfect hygienic and antiseptic conditions.

Examination of Fecal Matter.—HERZ (*Centralbl. f. klin. Medicin.*, 1892, No. 43, p. 883) reports the employment of the centrifugal apparatus as an adjunct in the microscopic examination of fecal matter. A portion of the matter to be examined is rubbed up in a mortar with a 5 per cent. solution of carbolic acid, and the mixture is rapidly revolved in the centrifugal apparatus. The matter at once forms into a number of distinct layers. The uppermost layer is composed of bacteria; the next of undigested cellulose; the next of striated muscular fiber; the remainder consists of a number of small layers containing round cells, clostridia, starch, etc. By means of a pipette a portion of any one of the layers can be taken up and examined microscopically.

Puerperal Insanity and Glycosuria.—FLESCH (*Berliner klin. Wochenschr.*, 1892, No. 43, p. 1095) has reported the case of a woman of neurotic predisposition, twenty-five years old, in which, in the ninth month of a first pregnancy, the lower extremities became slightly edematous, and the urine contained a small quantity of albumin. The labor occurred without incident or complication, but at the close of the first week of the puerperium the woman suffered considerable emotional disturbance. Sleeplessness set in and was followed by delusions, and finally by melancholia. The child was taken from the breast; appropriate treatment was instituted; but it was a considerable time before recovery took place.

The woman became pregnant for the second time. A small amount of albumin again appeared in the urine in the last month of the gravidity. Early in the puerperium sleeplessness reappeared; to this, headache, dryness of the throat, increased frequency of micturition, and constipation were added. Examination of the urine disclosed the presence of sugar. The patient was restricted to a rigid anti-diabetic diet, and in the course of a week the glycosuria had disappeared. The subsequent improvement of the patient was entirely satisfactory.

THERAPEUTIC NOTES.

For Frost-bite.—

℞.—Acid. tannic. . . . . ʒxx.
Glycerin. vel
Spt. camphoræ } . . . . fʒj.—M.
S.—Apply topically, with friction.

Or,

℞.—Acid. tannic. . . . . gr. xxviij.
Tinct. benzoini . . . . . ♏xxviij.
Spt. vini rectif. . . . . fʒjss.
Collodii . . . . . fʒss.—M.
S.—Apply topically, with a brush.

Or,

℞.—Acid. hydrochlor. pur. . . fʒj.
Camphor. tritæ. . . . . ʒjss.
Lanolin.
Vaselin. flav. } . . . āā ʒj.—M.
Ft. unguent.
S.—Apply at night, with friction.

Or,

℞.—Aluminis et potassii sulphat.
Acid. borat. } āā gr. vj.
Tinct. benzoini . . . . . ♏xv.
Aquæ rosæ . . . . . fʒj.—M.
S.—Topical application.

Or,

℞.—Aluminis et potassii sulphat. . ʒj.
Vitelli ovi, no. j.
Glycerin. . . . . fʒss.—M.
Ft. emulsio.
S.—Apply topically, with friction.

SAALFELD, *Therap. Monatsh.*, No. 7, 1892.

Thiosinamin.—At the recent International Dermatological Congress, HEBRA (*Monatsh. f. prakt. Dermatol.*, No. 7, 1892, p. 537) reported having employed allylsulphocarbamide or thiosinamin in the treatment of various cutaneous affections. Thiosinamin ($C_4H_8N_2S$) is a crystalline body, obtained by heating together at 104° two parts of allyl mustard oil, one part of absolute alcohol, and seven parts of spirit of ammonia of a specific gravity of 0.960 and concentrating in a water-bath. The remedy was employed in a 15 per cent. alcoholic solution, of which at first from 3 to 5 minims were injected beneath the skin twice a week; the dose subsequently was gradually increased until from 15 to 30 minims were employed [*Internationale klin. Rundschau*, No. 39, 1892, p. 1583]. The injections were followed by local reaction. Lupus especially was favorably influenced by the remedy. Cicatrices of previous ulceration were softened and rendered yielding and mobile. Chronic glandular enlargements, except when syphilitic, were reduced in size. Noteworthy diuresis was observed in the sequence of the injections, without evidence of injurious influence upon the function of the kidneys. This was especially notable when exudation existed. In one instance night-sweats ceased in the course of treatment. A general condition of well-being developed; the appetite improved; the weight increased. It was incidentally observed that corneal ulceration cleared up. The injections occasioned only inconsiderable and transient discomfort and were followed by no evil results.

Methylene-blue for Diphtheria.—TAUBE (*Deutsche medicin. Wochenschrift*, 1892, No. 38, p. 862) warmly advocates the employment of a 10 per cent. solution of methylene-blue as a topical application in the treatment of diphtheria. He has also found the remedy useful in the treatment of aphthous stomatitis, lacunar tonsillitis, and scarlatinal and other severe anginas. In diphtheria an application may be thoroughly made to the base of the tongue, to the tonsils, and to the pharynx, twice a day for several days, then once a day, and on alternate days, preceded by the administration of a teaspoonful of sodium bicarbonate in a tablespoonful of water. At the same time a grain of potassium chlorate is given every hour, the throat is enveloped in cold cloths, a mild liquid diet is maintained, and stimulants are given if necessary.

Injections of Oil of Cloves for Local Tuberculosis.—KANASZ (*Pester Med.-Chir. Presse*, No. 29) reports having treated a considerable number of cases of articular and glandular tuberculosis by means of injections of oil of cloves in 10 per cent. solution in olive oil sterilized by heat. The injections were made not oftener than once a week, in some cases at intervals of three or four weeks, with the strictest asepsis, from 30 minims to 5 drams of the liquid being employed, in accordance with the extent of the disease-process. The point of puncture is covered with a thin layer of sublimated absorbent cotton, over which a coating of sublimated collodion is applied. A pad of cotton and a bandage complete the dressing. In case the tuberculous glands are suppurating the pus is first evacuated before the injection is made.—*Wiener med. Presse*, 1892, No. 38, p. 1514.

The Therapeutic Employment of Methylene-blue.—As the result of a clinical study of the therapeutic utility of methylene blue, BOURDILLON (*Revue de Médecine*, 1892, No. 9, p. 665) concludes that the agent exercises an elective anti-malarial action that seems to apply as well to chronic as to recent cases, and that ordinarily manifests itself speedily. The remedy seems to be indicated in affections characterized by pain, and in particular in the periodic neuralgias dependent upon malarial infection. It is best administered in pill-form, in doses of from 5 to 7½ grains. The administration ought to be continued for a long time, which cannot be mathematically determined, and must vary for each individual case. No evil results have followed the treatment, even when large doses were administered for prolonged periods.

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SATURDAY, DECEMBER 3, 1892.

THE DISEASES THAT ARE OVERLOOKED.

FROM the fact that, immediately after the appearance of a powerful paper upon any disease, the journals fairly teem with reports of cases of the malady thus brought prominently into notice, it seems reasonable to suppose that, except in the case of formerly undescribed affections, the medical mind needs some form of stimulation lest it unconsciously allow the more unusual forms of disease to sink into partial oblivion. This calling back to life of the interest felt in various conditions has been most powerfully exemplified in recent years by the prominence given in society meetings and in current medical literature to perforation of the vermiform appendix and to extra-uterine pregnancy. That this free discussion of these two subjects has been of much value is proved not only by our advance in knowledge of their etiology, symptomatology, morbid anatomy, and treatment, but also (and not the less to our advantage) by the fact, which probably everyone must confess to be true in his own case, that these diseases are now more readily suggested to us by the relation of any of their significant symptoms than was the case at one time in the past. How long it may be before the present interest in the two affections cited may endure cannot be foreseen, but it is probable that ere a long period has elapsed they will again be often overlooked, until some future authority again drags them forth into prominence.

The good that is accomplished by this prominence given to individual diseases cannot be overvalued, and doubtless many lives have been saved by the almost constant presence in our minds of the frequency of the two affections mentioned. It is unfortunate that such fillips to our memory should be necessary, but it is by just such enthusiastic consideration of different diseases that many of our most marked advances are made. It is readily conceivable that, after the first accounts of various diseases that to us now seem as though always a part of medical knowledge, numerous cases similar to the one the report of which aroused men's minds were looked for and, because looked for, found.

This same temporary obscurity into which various diseases retire after the period of active interest in them has subsided is also noticed in regard to methods of treatment. It is partly for this reason that we every now and then find that what at first sight appear to be novel modes of treatment are in reality merely revivals of some method previously advocated.

After a railroad collision, or after an hotel fire has occurred, there is for a time greater security in travel than for some time before. Just so at present there is but slight danger of anyone overlooking a perityphlitic abscess or an extra-uterine pregnancy, as our attention has been called to our previous comparative indifference to their importance and frequency.

It is not, therefore, of these two diseases that we need to think especially, as they spring into our minds at once upon our hearing of any suspicious symptoms present in a case before us. It is our old friends, familiarity with whom has bred contempt, that we must fear most. How many an aortic aneurism has been diagnosticated muscular rheumatism, how many cases of incipient caries of the spine have been looked upon as due to lumbago, until the time for complete cure has slipped by! We are constantly reminded of some diseases, while others not so frequently seen are likely to be too little in our minds in seeking for an explanation of the ailments of our patients.

It is not alone, however, our memory that is to be blamed for errors in diagnosis. Lack of due thoroughness in our examination of patients is undoubtedly more frequently responsible for our errors than either absolute ignorance of or failure to bear

in mind an individual disease. The diagnosis of muscular rheumatism is so easily made, its frequency is so great, its name so satisfactory to our patients that we are too often satisfied with ourselves in naming it as the cause of pain, instead of examining for more deeply-seated causes. Often the failure to make proper inquiry into these deeper causes is in part due to the prejudice felt by many laymen against a thorough examination when they have practically made the diagnosis for themselves; but it is far more frequently our own indifference that allows of such oversight. To have found a lesion that would satisfactorily account for the symptoms present in a given case is not alone sufficient; we should be skeptical as to the causal relation of the conditions found to the symptom of which complaint is made until all other causes have been eliminated. Otitis media may cause vertigo and headache; but there is no reason why a patient with a cerebellar abscess or tumor, which may give rise to the same symptoms, may not also have otitis media, either coincidentally or as a cause, treatment of which will not relieve the symptoms; and our patient may have the external auditory canal cleansed and the middle ear inflated until ophthalmoscopic examination, the occurrence of more distinctly localizing symptoms, or a sudden and unlooked-for opportunity for a necropsy may first accidentally show us our error, possibly when it is too late for us to offer relief.

Are we, then, it may be asked, to examine the eye-grounds of every case of vertigo; are we to examine for aneurism in every case of muscular rheumatism about the shoulder? The answer would be in the affirmative if we would wish to do justice to every case applying to us for relief. It is by just such careful and systematic examination that the best, because the most obscure, diagnoses are made.

In conclusion, we would venture to affirm that almost all of the glaring errors in diagnosis are made not from ignorance, not from failure to keep prominently in mind certain pathologic conditions, but from failure to thoroughly study each individual case to its most minute details.

THE THERAPEUTIC IMPORTANCE OF PROSTITUTION.

THAT prostitution is an evil is universally admitted. It is called the social evil, as if it were the greatest ill afflicting society. Many believe it necessary, thus asserting the futility of all efforts to destroy it.

When one studies the vice, hideous and enormous, and considers its consequences—the continuance and extension of loathsome, often perilous disease—and the sacrifice every year of thousands of women to man's depraved and worse than brutal lust, it must be questioned whether philanthropist or physician is at liberty to fold his arms, saying nothing can be done, and that an iron necessity compels this wickedness to persist unchecked. One of the most brilliant of English female writers, MONA CAIRD, a few years ago made this assertion in the *Westminster Review*: "Prostitution is as inseparable from our present marriage customs as the shadow from the substance." Most persons—in their blindness, probably MONA would say—regard marriage, even though without the facility of divorce she constantly clamors for, as the most efficient barrier against the evil.

Without referring to the prevalence of prostitution in Europe, where some of its causes are more powerful than in newer countries, the evil in the United States is very great. REUSS, in his work, *La Prostitution*, published in Paris, 1889, states that in New York there are from 13,000 to 15,000 prostitutes, and in Philadelphia a greater number, a fact which, if it be correct—the assertion is made upon the authority of a well-known American surgeon—ought to make those who dwell in the Quaker City blush with shame at this bad preëminence over the great commercial center of the country. We are within the bounds of reasonable conjecture in asserting that the entire number of courtesans in the United States is greater than 200,000. When one thinks of the horrible and hopeless life these hundreds of thousands are living, doomed to syphilis in from two to four years after they begin their loathsome trade, and prematurely ending their days in hospital, almshouse, jail, or penitentiary, he involuntarily asks, Can nothing be done to stay this flood of vice, crime, disease, and death? And if with the necessitarians, he finds the only answer negative, he may then inquire, Has the evil no redeeming feature, no good, or gain in the immense loss?

Yes; there is said to be springing from the foul mass a flower that brings healing. "The mummies," said SIR THOMAS BROWNE, "which Time or CAMBYSES hath spared, avarice now consumeth. PHARAOH is sold for balsams and MIRIAM cures cuts." And

so a doctor cries out in a recent American medical journal that prostitution cures onanism. In plain words, severe cases of self-abuse—which common people have regarded as a vile vice, but which is taken out of moral and placed in material pathology—are to be treated by sexual intercourse, legitimate if possible, but if not, then illegitimate. The position of the prostitute is thus exalted; she is for the healing of diseased men!

But the liability to syphilis is great from such illegitimate indulgence; the remedy may cause a worse disease, and the pitiable onanist gets out of the frying pan only to fall into the fire!

It is not uncommon or unwise for the doctor whose druggist fills his prescriptions with impure, unreliable, or injurious drugs, to get a supply of a proper kind, and dispense his own medicines. Why, then, should not the doctor who believes in this method of treating self-abuse have the means at hand and furnish the remedy himself, being perfectly certain from personal observation, or from personal experiment—it does not seem to matter which!—that the prescribed prostitute is free from venereal disease? The number of private hospitals for special treatment, advertised directly or indirectly in medical journals—a sort of advertising which the profession, and the highest authority in the profession in this country, the American Medical Association, repudiated some thirty years ago—is very great, and one can hardly believe that all of them are successful financially; the opportunity for a new department in this sort of trade seems very promising: if a hospital for the lauded sexual treatment of onanists were established and properly advertised, its financial success would be certain.

So far reference has been made only to the male onanist, but the female addicted to self-abuse will doubtless be amenable to the same treatment, and a similar sauce to that given the gander should be furnished the goose. This hospital of the new departure will therefore be supplied with a sufficient number of healthy, able-bodied men—muleteers, according to an old notion, being preferred—to meet the needs of female clients.

Should the hiring of men and women suitable for sexual service be too expensive, an economical plan would be to let the male onanist minister to the necessities of the female onanist—in curing her he cures himself—and thus there would be brought about a happy combination of two conflicting theories of life, egoism and altruism!

But seriously, when a teacher proclaims to the medical world how the penalties that often attend vicious sexual indulgence can be surely avoided, and thus promotes prostitution; and when another recommends that the prostitute should be employed for the cure of masturbation, the necessity for the social evil becomes a medical and professional concern.

If, as we believe erroneously, it be held that as physicians we have nothing to do with the purely ethical and social aspects of the question, we shall still feel ourselves compelled to protest that all this is sham and hypocritic medicine; that the concealed wolf of vicious license is but covering itself with the sheepskin of a false therapeutics; and that this lauded addition to the physician's materia medica is best described in one appropriate though inelegant bit of expressive slang—*rot!*

THE SPREAD OF DIPHTHERIA.

THERE are few diseases more fatal in a community than diphtheria, and there are few more difficult of eradication when once it has gotten a foothold. The germ-poison of the disease is so elusive and the modes of transmission so numerous and so obscure that no single channel of possible spread should be deemed insignificant or unworthy of the most careful consideration, and no measures calculated to reduce the possibility of extension should be lightly dismissed. The argument that the best treatment is prophylactic certainly does not here need reinforcement. It is a reasonable contention that a careful observance and a rigid application of the laws of hygiene would do much to eradicate the entire group of diseases to which diphtheria belongs. It must be realized that we possess the means of prevention, while the outcome in a given case cannot be known in advance, even as a result, or perhaps in spite, of therapeutic intervention. Not only is diphtheria a most virulent disease, but it is also a most contagious disease.

The question as to how long after the disappearance of the membrane the danger of contagion exists is one at once important and difficult of solution. In this connection, TOBIESON (*Centralbl. f. Bakteriologie u. Parasitenkunde*, xii, 17, p. 587) calls attention to the observation of ROUX and YERSIN that the bacillus of diphtheria may be found in the pharynx of persons that have suffered from the disease as long as five weeks after the dis-

appearance of the membrane. The accuracy of this observation has been confirmed by the investigations of other authorities. To determine in what proportion of cases the presence of the bacilli persists after the disappearance of the membrane, TOBIESON made examinations in forty-six cases of diphtheria in which the diagnosis had been established bacterioscopically; and found that in twenty-four the presence of bacilli could be demonstrated in the pharynx at various periods of time after the disappearance of the membrane. It was not found that the intensity of the attack bore any relation to the persistence of the bacilli in the pharynx or to the lateness of the period at which they were found; neither did the existence of albuminuria exercise any influence in this connection; the existence of laryngeal involvement, and especially of nasal involvement, did, however, exercise a notable influence. In five of the cases, the presence of the bacillus was demonstrated microscopically and by cultivation; in the remaining nineteen, guinea-pigs were inoculated with pure cultures of the organism obtained. Sixteen of the animals died, and presented characteristic manifestations. Two presented local swelling and pain, followed by necrosis; one of these died, but did not present the lesions of diphtheria; the other recovered. One animal presented local manifestations; after six weeks, paralysis of the hind extremities occurred, together with diarrhea and emaciation.

As a result of these observations the conclusion seems warranted that most cases of diphtheria, when dismissed from treatment, still possess the capability of transmitting the disease. To determine whether this inference was actually realized or not, twenty-one of the twenty-four cases were personally investigated with the view of learning if any or how many had been the focus of an epidemic. In only one instance was it found that a case had been the means of communicating the disease to others. While, perhaps, the likelihood of spreading diphtheria after convalescence from the disease is not great, the practical lesson taught by the study here outlined is that the greatest care should be exercised during this period, that the cases be not permitted to mingle too soon with other persons, and that for a long time after the disappearance of the membrane and of all of the symptoms of the disease, the patients be instructed to continue the employment of antiseptic gargles.

THE DEMAND FOR BETTER MEDICAL EDUCATION IN THE SOUTH.

THE subject of higher medical education is one that is now earnestly engaging professional attention. The problem is one worthy of the greatest minds, and its import is more far-reaching than upon first sight appears. From the very nature of the form and organization of our government, as well as of its teaching institutions, it is scarcely fair to compare these with those of older and more paternal forms of government. Good work is, however, being done to elevate the standard of medical education, by the requirement of certain preliminary qualifications, by prolonging the courses and period of study, by enlarging the curricula, and by making the final requirements for the doctorate a fair index as to the worthiness or unworthiness of the candidate. The advances that have been made have naturally not escaped a certain degree of antagonism common to innovations of all kinds; neither have they been universally concurred in.

In a paper recently read before the Tri-State Medical Society of Georgia, Alabama, and Tennessee, DR. LUTHER B. GRANDY[1] calls attention to a number of deficiencies in the medical education provided by most of the colleges and universities of the Southern States, and makes a strong plea for the eradication of these defects. Our own views have but so recently been fully presented, that it would be but tiresome repetition to here again recapitulate them. The diagnosis once made, the remedy is self-evident. Briefly stated, the following four conditions should be insisted upon:

1. The privilege of entrance upon the study of medicine should be made conditional upon compliance with certain definite educational requirements.

2. The term of study should include attendance upon not less than three courses of lectures of not less than six, and preferably of eight months each.

3. The curriculum should be as thoroughly practical as possible. Laboratory courses, clinical teaching, bedside demonstration, and recitations should largely replace didactic instruction.[2]

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[1] Atlanta Medical and Surgical Journal, November, 1892.

[2] In this connection, we quote the following from an admirable address recently delivered by DR. OSLER on the occasion of the opening of the new building of the College of Medicine and Surgery of the University of Minnesota: *Thoroughly equipped laboratories, in charge of men thoroughly equipped as teachers and investigators, form the most pressing want to-day in the medical schools of this country.*

4. Final examinations should be reasonably rigid, so as to constitute a fair test of the capability of the candidate for graduation.

There have been many legitimate obstacles to the material and educational advancement of the South, but we receive this appeal of DR. GRANDY as an earnest of a better condition of affairs, and give expression to the hope that it may not pass unheeded. The change must come sooner or later. Those that anticipate the slow and natural course of events will have earned the everlasting gratitude and approbation of their fellow-men.

CORRESPONDENCE.

AN ARMLET FOR THE SURGEON.

To the Editor of THE MEDICAL NEWS,

SIR: Who has not seen the unsterilized rolled-up shirt-sleeve of the surgeon fall down below the elbow during an operation, and the surgeon inadvertently adjust it at the moment with his hand, and then go on working, entirely unconscious and forgetful of the contaminating touch?

I wish to suggest a little device, an armlet, that will prevent this; that will keep the shirt-sleeves up and out of the way, and that will, besides, afford greater freedom

of motion of the arms, hands, etc., of the surgeon while he is operating. I have with satisfaction adopted the employment of these armlets, in conjunction with the gown, at my clinic at the Jefferson Medical College Hospital. The accompanying sketch illustrates the armlet. It is made of linen, and so constructed as to cover loosely the entire shoulder and armpit, and reach down the arm to just above the elbow, where it is gathered by a band. It is designed to be slipped over each rolled-up shirt-sleeve and pinned to the vest at the back and in front.

Excluding the band around the arm above the elbow, this armlet can be easily made of one piece of linen, with the seam under the armpit. It may be used with the folded sheet reaching from the neck to the ankles, commonly used by surgeons, or, as I prefer, with a brown linen gown, having only armholes through which the arm and shoulder of the corresponding side, covered with the previously-adjusted armlet, can be slipped.

The two armlets and the sheet, or gown, should be sterilized before using.

Very truly yours,

W. S. FORBES, M.D.

1704 WALNUT ST., PHILADELPHIA.

VIOLATIONS OF THE CODE.

To the Editor of THE MEDICAL NEWS,

SIR: Let me call the attention of your readers to the following resolutions, which were adopted by the American Medical Association many years ago, and which constitute part of its laws:

"*Resolved*, That it shall not be proper for specialists publicly to advertise themselves as such, or to assume any title not specially granted by a regularly chartered college."

"*Resolved*, That private handbills addressed to members of the medical profession, or by cards in medical journals, calling the attention of professional brethren to themselves as specialists, be declared in violation of the Code of Ethics of the American Medical Association."

It is notorious that some members of the Association are violating these laws, and, if they persist in transgression, such laws should either be abolished or their violators punished.

QUIZ QUAM.

PHILADELPHIA, NOVEMBER, 1892.

NEWS ITEMS.

The S. D. Gross Professorship of Pathological Anatomy Fund.—The Committee appointed by the General Committee to audit the account of Dr. Richard J. Dunglison, Treasurer of THE S. D. GROSS PROFESSORSHIP FUND of the Alumni Association of Jefferson Medical College, respectfully report that, after an examination of such account, they find that there were sixty contributors to the Fund, the total amount contributed being $3499.10. In accordance with a resolution of the General Committee these contributions have all been returned to the donors, and the Treasurer has presented a voucher for each amount thus refunded. A great portion of the whole amount has been retained undistributed until recently, so that the interest on the amount might so accumulate as to enable the Committee to refund to each subscriber the full amount of his contribution, without any deduction for expenses of publication of circulars, postage, etc., which were necessarily heavy, from the widespread diffusion given the objects of the Fund.

The names and addresses of the subscribers, and the amounts contributed by them, are as follows:

Dr. S. W. Gross, Philadelphia	$1000 00
" J. Marion Sims, New York	500 00
" W. L. Conygham, Wilkesbarre, Pa.	200 00
" Hunter McGuire, Richmond, Va.	125 00
" Joseph Hearn, Philadelphia	100 00
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" E. Phillips, New Haven, Pa.	20 00
" R. T. Coleman, Richmond, Va.	20 00
" J. B. Ferguson, Fort Sisseton, Dak.	20 00
" H. N. Young, Chicago, Ill.	20 00
" J. R. Weist, Richmond, Ind.	20 00
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Dr. D. W. Cheever, Boston, Mass.	20 00
" B. A. Watson, Jersey City, N. J.	20 00
" H. Fritsch, Philadelphia	20 00
" John Graham, Philadelphia	20 00
" R. A. Kinloch (collections), Charleston, S. C.	15 10
" C. Lester Hall, Marshall, Ind.	10 00
" John H. Day, Walla Walla, Wash.	10 00
" W. Ashbridge, Philadelphia	10 00
" J. L. Swett, Newport, N. H.	10 00
" E. Grissom, Raleigh, N. C.	10 00
" W. L. Richardson, Montrose, Pa.	10 00
" W. W. Nye, Hiawatha, Kansas	5 00
" J. H. Mackie, New Bedford, Mass.	5 00
" R. S. Wallace, East Brady, Pa.	5 00
" B. B. Lenoir, Lenoir's, Tenn.	5 00
" T. E. Clark, Moravia, Texas	5 00
" Otis Ayer, Le Sueur, Minn.	5 00
" H. R. Bigelow, Washington, D. C.	5 00
" Thomas Lyon, Williamsport, Pa.	5 00
" Silas W. Cox, Goldsboro, N. C.	2 00
" W. W. Dale, Carlisle, Pa.	2 00
" R. C. Hays, Shippensburg, Pa.	1 00
" T. C. Brown, Columbus Junction, Iowa	1 00
Total	$3499 10

J. EWING MEARS, M.D.,
WILLIAM B. ATKINSON, M.D.,
Auditing Committee.

PHILADELPHIA, October, 1892.

The Maternity Department of the Jefferson Hospital.—The removal of the Maternity Department of the Jefferson College Hospital from its present location in the old hospital building on Sansom Street near Eleventh Street, has been decided upon because its present accommodations are insufficient in extent, and also because such patients are most safely cared for outside of a general hospital, which contains medical and surgical cases.

A house has been secured at No. 327 Pine Street, and will shortly be opened, where patients needing such services will be received and cared for. The building is located in a section of the city where no similar non-sectarian hospital exists. Anyone needing its care will be received without regard to creed or condition.

A resident physician and competent nurses will be in attendance, and nothing will be left undone to promote the comfort of the inmates.

Professional Failure and Success.—"It would appear from the statistics recently quoted by Sir John Lubbock, that very few who enter the medical profession entirely fail. Out of the 1000 medical students whose after-career came under the observation of Sir James Paget, there were apparently only 36 who were unsuccessful owing to circumstances over which they had no control. The actual number of men who did not succeed was 56; but of these, 10 failed through drunkenness, and the same number through ill-health or accident. Twenty of the 1000 'left the profession,' but whether they did so because they inherited wealth or married rich wives is not stated. One of the 1000 was Palmer, the celebrated murderer, who was hanged."—*From London letter to the American Lancet*, Nov. 1892.

A Roster of the Meetings of Medical Societies.—It is the purpose of THE NEWS to publish regularly hereafter notices of the approaching meetings of the principal medical societies of the chief cities of the country that are to take place during the coming week. This list is designed merely to remind the reader of the probably-forgotten fact that a meeting is to take place. The members are supposed to know the place of meeting, the hour, and the program. It is evident that the list cannot include the meetings of small societies, those of a very limited or special membership, such as college societies, etc., or those of village and country societies. Secretaries of National and State societies, and of the more important associations of the larger cities, will confer a favor upon their fellow-members and upon THE NEWS by forwarding to this office the notices of the meetings that are to take place during the ensuing week, and, in order to be inserted in the issue of that week, these should reach us not later than Tuesday.

Physicians who do not find the notices of the meetings of their societies listed will advise the respective secretaries of the fact.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will upon publication be liberally paid for, or 250 reprints will be furnished instead of payment, provided that the request for reprints be noted by the author at the top of the manuscript. When necessary to elucidate the text, illustrations will be provided without cost to the author.

Address the Editor: GEO. M. GOULD, M D.,
1004 WALNUT STREET,
PHILADELPHIA.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, DECEMBER 10, 1892. NO. 24.

ORIGINAL ARTICLES.

A CONTRIBUTION TO THE STUDY OF ABDOMINAL PREGNANCY.[1]

BY HENRY C. COE, M.D., M.R.C.S.,
OF NEW YORK.

IN spite of the amount of recent literature bearing on the subject of ectopic gestation, our knowledge of this interesting abnormality has been widened almost entirely in the direction of early tubal pregnancy; unfortunately, the same attention has not been bestowed upon its later stages, especially upon that described as secondary abdominal pregnancy, because the opportunities for studying it at the operating-table and post-mortem are limited. The consensus of opinion is now against the existence of primary abdominal gestation, and we may assume that (excluding a few doubtful cases of the ovarian variety) every ectopic pregnancy is originally tubal. The fact that even the secondary form of abdominal gestation is still denied by competent observers, and that many of the published cases have been described so inaccurately as to make them comparatively valueless, renders it important that every authentic one should be described as fully as possible. In the following case the history was so unusual as to render it quite interesting, while the opportunities for studying the anatomy of the condition were as favorable as could be secured outside of the deadhouse.

Mrs. A., thirty-eight years old, is the mother of three living children, her labors having been normal. She had never had any previous pelvic trouble. She menstruated in April, 1891, skipped the following period, and on June 26th began to have what she described as labor-pains, accompanied by profuse metrorrhagia, which continued for twelve days. The patient passed several large clots, and supposed that she had aborted. She recovered, and there was no more flow until September 22d, when she was first examined by Dr. S. Marx, a skilled obstetrician, who found that the uterus presented the ordinary condition of the pregnant organ at the beginning of the fourth month, as to size, elasticity, softening of the cervix, and the presence of Hegar's sign. The patient had morning sickness, with enlargement and tenderness of the breasts, and a few days later she affirmed that she felt quickening. There seemed to be no reason to doubt the existence of normal pregnancy. On November 5th she was seized with severe pains in the right inguinal region, and had the same profuse flow as before, without any assignable cause. The hemorrhage continued for several days, but without the uterine contractions that had been present on the former occasion. There was no collapse or other evidence of internal bleeding. A mild attack of peritonitis, localized to the right side, followed and lasted for two weeks, the temperature seldom exceeding 100° F.

The patient made such a good recovery that she was soon able to resume her household duties, being entirely free from pain. In the meantime the supposed uterine tumor continued to enlarge regularly and symmetrically, corresponding to the normal increase in size of the pregnant organ, and the patient insisted that she could feel fetal movements, though her physician was never able (after repeated attempts) either to feel these or to hear the heart-beat. By external palpation he could detect fetal parts, though internal ballottement could not be obtained.

I saw the patient in consultation April 19th. She was in good general condition and had no pain. She still insisted that she felt life. The breasts were flabby, with retracted nipples. The abdomen was symmetrically enlarged, presenting the appearance ordinarily observed at the end of pregnancy. On making external palpation I felt a median, thin-walled sac, filled with fluid, by tapping upon which the characteristic sensation given by the small parts of a fetus was clearly appreciable. There were no intermittent contractions in the sac and auscultation was entirely negative. On making a vaginal examination I noted the fact that the cervix was hard, but thought that this might be explained by the presence of an old laceration with extensive induration. The cervix was continuous with the abdominal tumor and moved with it. It was impossible to separate the body of the uterus from the enlargement. There seemed to be no reason for passing a sound. The sac bulged posteriorly into Douglas's pouch, but the sensation was rather boggy than fluctuating. Internal ballottement could not be obtained. Nothing abnormal could be detected in either ovarian region. The examination was unaccompanied by pain or discomfort.

In spite of the somewhat peculiar history, and the impossibility of determining when conception occurred, the case seemed to be one of intra-uterine pregnancy at term. I made a probable diagnosis of hydramnios, with death of the fetus, and saw no reason for immediate interference.

I did not hear from the patient again until the middle of May, a month later, when her physician

[1] Read by title at the Fifth Annual Meeting of the Southern Surgical and Gynecological Association.

informed me that she was still *in statu quo*. As she had long passed the normal period of pregnancy, and her abdomen had continued to enlarge from the increased accumulation of fluid, he began to think that the condition must be either ovarian cyst or abdominal pregnancy. She was admitted to the hospital, and it was evident that a marked change had taken place, both locally and generally. She had become much emaciated, presenting the appearance of a patient with malignant disease. The abdomen was much distended, with general fluctuation, and the superficial veins were prominent, as in ascites accompanying malignant disease. A thorough examination was made under anesthesia. External ballottement was obtained as before, but less distinctly. Fluctuation was general, but there was still to be felt a thin-walled median sac, filling the entire abdominal cavity, displacing the stomach and liver upward, and bulging downward into Douglas's pouch, where distinct fluctuation was obtained, the wave being transmitted from the abdomen. The corpus uteri was fused with the sac, but a sound was introduced anteriorly to the depth of four inches, proving that the uterus was probably empty. Normal pregnancy was thus excluded, and the diagnosis lay between abdominal pregnancy, ovarian cystoma, or possibly malignant disease of the peritoneum with encysted ascites. The possibility of intra-uterine gestation as a complication of an abnormal condition (ovarian cyst or malignant disease) was also borne in mind, as well as the existence of a former tubal gestation with rupture, as indicated by the history. The patient was examined by several of my colleagues, who inclined to the diagnosis of multilocular ovarian cystoma.

Operation, May 25, 1892. The usual median incision was made. The peritoneum was found to be much thickened and fused with the wall of the sac, which was firmly adherent to the abdominal wall. At least a gallon of chocolate-colored fluid was evacuated. A fully developed fetus was found in the upper part of the sac, its head resting against the under surface of the liver. The fetus was removed and the cord ligated. The placenta was attached to the entire posterior surface of the uterus, filling the cul-de-sac. It was bloodless, and was readily detached without hemorrhage. The pelvic as well as the abdominal viscera were so completely shut off from the sac that it was not deemed advisable to attempt any extensive detachment of the latter for the sake of studying its relations. The following points were, however, clearly determined: The sac was symmetrical with respect to the uterus (which was moderately enlarged and lay in front of and below it), being firmly adherent to the entire posterior surface of the organ and to the posterior layers of both broad ligaments, and dipping down to the bottom of the cul-de-sac. So far as could be determined by palpation, the adnexa were not enlarged. The abdominal viscera were displaced upward, but whether extensive intestinal adhesions were present or not it was impossible to determine. The wall of the sac had a uniform thickness of an eighth of an inch, and was lined with a cheesy, disintegrated mass, evidently the result of degenerative changes.

The sac was thoroughly irrigated and, on account of slight general oozing, was packed with iodoform-gauze, a drainage-tube being introduced to the bottom of Douglas's pouch. The edges of the sac were stitched into the abdominal wound, a large opening being left.

An examination of the fetus (which weighed six and a quarter pounds) showed that it was fully developed and only slightly macerated. The placenta corresponded with the full term of pregnancy, but was dry and bloodless.

The patient did well at first, but in a few days became septic, as the pouch behind the uterus did not drain perfectly. To correct this a counter-opening was established in the cul-de-sac, the good effect of which was soon evident. After the continuance of a high temperature and an unusually rapid pulse for a fortnight, with an exhausting septic diarrhea, convalescence was finally established, and the patient was able to be up a month after the operation, the sac having contracted to the capacity of a couple of ounces. She was discharged at her own request July 6th, as there remained only a small sinus at the lower angle of the abdominal wound. Two weeks later she was readmitted, as her mental condition was such that she could not be kept at home. It was evident that she was in a condition of well-marked melancholia, with suicidal tendencies. Locally her condition was much improved; the remains of the sac were represented by an elongated induration as large as the thumb, behind the uterus, which was reduced in size and somewhat anteverted. There was no tenderness on pressure at any point. A probe passed into the fistula at the lower angle of the abdominal wound entered to the depth of three inches.

It was impossible to keep the patient in the hospital more than a week, as she refused to take nourishment and twice attempted suicide. At the end of that time she was transferred to an insane asylum, from which she was discharged three months later, mentally sound and with the sinus entirely closed.

Several interesting questions suggest themselves in connection with this case, which may be considered most conveniently under the heads of pathology, diagnosis, and treatment.

Pathology. The condition found at the time of operation—the symmetrical disposition and perfect development of the sac, with the apparent normal condition of the uterus and adnexa—would to a superficial observer seem to prove that the case could fairly be regarded as one of primary abdominal pregnancy; but the history clearly points to an original tubal pregnancy, with intra-peritoneal rupture, and either immediate or gradual escape of the product of conception.

That a careful post-mortem examination may fail to reveal in which tube the impregnated ovum originally developed before it was expelled is shown in the two cases reported by Sutugin. My

own opinion is that the patient had in the latter part of June, 1891, an early abortion, and became impregnated in the right tube very soon after. When examined three months later, the uterus was so much enlarged as to resemble the normally pregnant organ. Two weeks later the tube ruptured (not into the broad ligament, but into the general cavity), as a tubal abortion after the second month has by Sutton been shown to be anatomically impossible, on account of the closure of the fimbriated extremity of the tube. The placenta, on being expelled into the peritoneal cavity, gravitated to the bottom of Douglas's pouch, and at once became attached to the posterior surface of the uterus and right broad ligament. The accompanying hemorrhage was, fortunately, moderate, so that the patient did not show its effects. A localized peritonitis naturally followed, the resulting adhesions shutting off the fetus, placenta, and blood-clot from the general cavity. The clot later became liquefied. In consequence of the long-standing irritation of this foreign body (and doubtless also from a low grade of peritonitis) a regular sac was formed, which enlarged symmetrically with the growth of the fetus and the increased exudation. Being fused with the uterus, it was naturally inferred that this organ was gradually enlarging as pregnancy advanced. The failure of the physician to detect either the fetal heart-beat or movements is not strange, considering the abnormal position and relations of the fetus.

When I saw the patient in April (at which time her confinement was expected) the fetus was dead, and what the woman regarded as evidences of life were doubtless the peristaltic movements of the intestines around the sac. As no pulsation was felt behind the uterus, the placenta was probably already bloodless.

An unusual feature in the subsequent course of the case was the rapid accumulation of fluid after the death of the fetus—a phenomenon directly contrary to that usually observed. It is interesting to note how little the patient's health was disturbed by her abnormal condition, and that there was an absence of symptoms pointing to other than intra-uterine gestation, from the time at which the tube ruptured until after the date of her expected confinement.

Diagnosis. This has been thoroughly discussed in a recent paper by Sutugin,[1] who reports two fatal cases with histories similar to mine and refers to others. Contrary to the positive statement of Tarnier and Budin, in the case in which he made a correct diagnosis Sutugin noted distinct intermittent contractions in the sac, which were afterward explained by the finding of muscular fibers in its wall. The absence of such contractions in my case was regarded simply as strong negative evidence against the existence of intra-uterine pregnancy. These are, however, equally absent in cases of hydramnios with extreme flaccidity of the uterine wall.

Considerable stress has been laid upon the fact that in abdominal gestation the fetal parts can be felt with unusual distinctness through the abdominal wall. This was by no means a prominent feature in my case. In fact, the fetus was felt with far more startling clearness in a case of hydramnios in which I was called to perform celiotomy, but delivered *per vias naturales.* My experience with these puzzling cases has been similar to that of our distinguished Fellow, Dr. Engelmann, whose paper on "Abnormal Thinness of the Uterine Wall" was read at the last meeting of the Association. Tarnier and Budin attach no little importance to the absence of internal ballottement, associated with the presence of a soft, boggy mass behind the uterus, which may or may not pulsate. This was not clearly marked in this case, but still it was present, and I would not mistake it on another occasion, though the characteristic sensation imparted to the examining finger is obscured by the surrounding fluid. If the body of the uterus can be identified, of course advanced intra-uterine gestation can be positively excluded. Examination per rectum may throw a good deal of light upon the position of the uterus. If there is even a reasonable doubt that its cavity may be empty, it should be thoroughly explored with a sound, especially if the pregnancy has reached term and the fetus is alive.

It may be briefly stated, then, that in the case of a woman who presents such disturbances early in pregnancy as to justify the inference that it might have been originally tubal, and goes on to develop a thin-walled gestation-sac in which fetal parts can be felt (whether the movements and heart-beat are detected or not), and when on vaginal examination we find an elastic retro-uterine tumor we should begin to suspect that the pregnancy is not intra-uterine. As the abdominal tumor enlarges, the thinness of the sac and the irregular increase in the contained fluid, with certain pressure symptoms of which the patient complains (pains in the back and abdomen, vesical and intestinal disturbances), will strengthen this suspicion and lead the attendant to insist upon a thorough examination under anesthesia. If the diagnosis has not been made before, it certainly will be after the expected date of confinement has long passed without visible results, though this is now too late for the diagnosis to be of any benefit to the fetus.

It is only fair to remark that the absence of nearly all of the symptoms detailed was what made the diagnosis so obscure in the case reported.

[1] Zeitschr. für Geb. u. Gyn., Bd. xxiv, Heft 1.

Treatment. It seems hardly necessary to dwell upon this point, as our modern surgical training naturally inclines us to adopt the only rational method of procedure—abdominal section. We do not need to review the disastrous results of vaginal incision to know that this is an exceedingly dangerous and unscientific method of emptying the sac. It is, as Sutugin observes, tempting to evacuate its contents in this way, but, as he found to his cost, there is imminent danger of fatal hemorrhage from laceration of the placenta; and the surgeon proceeds blindly, not knowing the exact relations of the fetus or sac. In a case of doubtful diagnosis I would prefer to make an explorative incision and find a pregnant uterus than to expose the patient to the danger of vaginal incision. It is highly important that the relation of the sac and its contents should be carefully studied. If the child has been long dead and the placenta is bloodless, of course the latter should be peeled off at once. Nature usually indicates the best way of disposing of the sac, *i. e.*, to stitch it to the edges of the abdominal wound and drain it. There is no object in trying to enucleate it if it is perfectly isolated. I believe that I made a mistake in not establishing a counter-opening in the vaginal fornix at the time of the operation. A certain amount of septic infection is to be expected; there is an unusually large cavity, containing many pockets, and one cannot err in securing free drainage.

27 EAST SIXTY-FOURTH STREET.

CLINICAL CONTRIBUTIONS TO THE SUBJECT OF BRAIN-SURGERY.

BY ROSWELL PARK, A.M., M.D.,
PROFESSOR OF SURGERY IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF BUFFALO; SURGEON TO THE BUFFALO GENERAL HOSPITAL.

(Concluded from page 621.)

PSYCHOPATHIC EQUIVALENT OF EPILEPSY: DEMENTIA EPILEPTICA.

Under this head recent writers have included cases not of distinctly epileptic type, but of paroxysmal, emotional, and epileptiform character, the attacks coming on sometimes with and sometimes without auræ or other premonitory symptoms. I have operated upon three well-marked cases of this character within the past few months.

The first was in a man of thirty-one, who, July 20, 1891, was kicked in the left side of the head by a horse, and who some time later was found unconscious. He was carried into the house, and was aroused. He had no paralysis, but in three days began to act strangely and soon became wilful and almost violent. He developed erotic tendencies, and growing rapidly worse could not be kept at home. On July 28th, he was sent to me by Dr. Krehbiel, of Yorkshire Center. At this time the patient was difficult to control and mildly maniacal. July 29th, I found a depressed area on the left side near the parietal eminence and a little anteriorly to it; yet he had absolutely no motor symptoms. At this point there was an H-shaped scar. Immediate operation was done under chloroform. Beneath the scalp I found a depression about the size of a half-dollar, around which I chiselled so as to entirely lift and remove the depressed portion. The bone was well comminuted; there was a small clot beneath the bone, but none beneath the dura. The bone was not replaced and the wound was closed without drainage. He made a rapid recovery; returned home in one week with his mind nearly clear and his disposition as it had been before the injury.

My second case was in a man of forty-five, who, when a young man, had had an extensive compound fracture of the skull, and who for a while was under the observation of the late Dr. Gray, of Utica, who advised against operation, in accordance with the practice of his day. Of late years the man has developed distinct epileptiform seizures followed by violent maniacal attacks, during which he was positively dangerous, so that his family lived in constant fear; moreover, his disposition and temper seemed to be gradually changing under this stress, and it got to be a question whether he should submit to an operation or be sent to an asylum. He was placed in my hands for operation by Dr. Putnam. This was made during October, 1891, the depressed bone being removed, adhesions separated, and a portion of the scar exsected. The change in this case for the better has been most marked and most gratifying. While it is too much to say that he has not had a single seizure since the operation, they have been reduced to very mild and very rare attacks, and I believe it is now some months since he had anything that could be called a fit. In temper and disposition he is also quite his old self again.

A third case is one very recently operated on, so that I cannot report final results. A man of about thirty, had at the age of five sustained a bad compound fracture of the left side of the skull, and was so profoundly and long unconscious that for two or three days absolutely nothing was done for him by the physician in his community. He married some twelve years ago, and since his marriage has had nearly weekly attacks of faintness, but never of convulsive character, which have been followed by sullenness and manifestations of quick temper that have greatly alarmed his family. Inasmuch as there was about the head at the site of the old injury a dense and depressed scar, I ascribed his nervous symptoms to the remote effects of injury, rather than to those of his marriage. In his case I completely dissected out the scar, trephined and removed a small circular depression of bone, inserted a piece of gold foil, slipping its edges beneath those of the bone, and closing the wound as usual without drainage. Up to the moment of publication, this case has done uninterruptedly well.

LINEAR CRANIOTOMY, OR CRANIECTOMY.

My experience with this new and radical procedure has been sufficiently varied and interesting, even important, to justify individual report of each case. I will first give them in the order of their occurrence.

CASE I.—J. V., aged three and one-half years, was referred to me by Dr. Crego. As a baby he was restless and "jerky," and when nine months old had convulsions of the entire body. As he grew older he would sometimes fall in some of the attacks. These slowly assumed the conventional epileptic type, and by the time he was three years old, or in March, 1891, were perfect examples of *grand mal*. They also increased in frequency and severity. At that time he began staggering in his gait, and his left leg grew weak. Soon after it showed relative decrease in length and size. His temper became violent and uncontrollable, his epileptic seizures more and more frequent, and during the twenty-four hours previous to the operation he had between thirty and forty distinct and severe seizures. Though he was by no means an imbecile, his mental development was retarded. His skull seemed relatively small for his age. On June 21, 1891, I operated on him at the General Hospital. A long incision, one inch to the right of and parallel with the middle line, was made from the forehead to the occiput. With cutting bone-forceps I excised a strip of bone 2 cm. wide from the line of growth of hair in front nearly to the occipital protuberance behind. Then detaching the scalp for the purpose, I excised a narrow strip of bone over the fissure of Rolando on the right side down nearly to the temporal fossa. The wounds were closed without drainage. During the ensuing twenty-four hours shock was severe, and the child had several violent epileptic seizures. Since this first day he has never had another. His irascibility has subsided, his general health and intelligence have improved; he now runs, plays, acts, and talks just like other children of his age.

CASE II.—Minnie R., aged four years, was referred to me by Dr. Putnam. This was a case of congenital microcephalus and imbecility. The parents were healthy, and the family history was good, the previous children being sound. This girl had scarcely ever spoken a word, and manifested no more intelligence than an infant of three months. Her fontanels closed very early. She leads a vegetable sort of existence—without disturbance of function. Operation here seemed much less hopeful than in the previous case; it was, nevertheless, undertaken July 13, 1891. An incision was made 3 cm. to the left of the middle line, from 4 cm. above the left superciliary region to the occipital protuberance. A strip of bone was excised much nearer to the middle line. After removing it the scalp was pressed away on the left side and a strip excised over the Rolandic fissure. I then made an incision over the right Rolandic fissure, and excised another strip of greater length, the three lines of defect having a common meeting-place. The central grooves were cut with forceps, the lateral grooves with a chisel. There was no great hemorrhage, and the wounds were closed without any provision for drainage. The child nearly collapsed after the operation, and for two days required constant attention. The after-results in this case have been practically *nil*. There has seemed to be a perceptible improvement in intelligence, and the child has appeared a little more alive to what is going on about her, and this is about all that can be said.

CASE III.—W. K., aged eighteen years, was referred to me by Dr. Crego. From an early age the patient's mental development has been very disappointing. He is physically large and well developed, but mentally shows scarcely more intelligence than a child of two or three years. At the age of about five he first showed epileptic manifestations. His seizures were then few and far between. They gradually increased in frequency, until now he has several in one day, but may possibly go a few days without any. His temper is usually good, but at times he is excessively wilful. The upper portion of his cranium is relatively small, though not conspicuously so. The muscles of his right side are somewhat atrophied. It seems that his epileptic fits have been somewhat more violent on the right side than on the left. His personal habits are good, as is also his family history. Dr. Crego and myself both thought that an extensive cranial opening might give relief, and the experiment was proposed and accepted by the father. Operation was done October 20, 1891. A long incision was made to left of the middle line. When I endeavored to make a longitudinal division of the skull, commencing with a common amputating saw, I found that the bone was very thick. I then applied a trephine over the motor area, and, through the opening thus made, with chisel and gouge-forceps removed a portion of bone, some 5 cm. in diameter, and in shape like a spherical triangle. Through a small opening in the dura I found that there were no adhesions, but that the arachnoid and pia were succulent and edematous. I started to make a longitudinal excision of bone, but finding the same to be 1 cm. thick, desisted from this attempt, and tried to make simply a large relief-opening. The wound was closed with catgut, and an ice-bag applied outside the dressing. At 6 P.M. the boy was somewhat restless, and had a fit. This condition became more marked, and by midnight, in spite of considerable morphine and other sedatives, he was convulsively restless and violent, and required both a strait-jacket and chloroform. At 4 A.M. he died of exhaustion.

CASE IV.—J. M., aged fifteen years, was healthy until he was three years old. Then his nurse used to frighten him, and he grew to be very nervous and timid. He soon began having fits every night, until he was thirteen years old, when they occurred in the daytime also. Shortly after this he was having from thirty to forty fits every day. During one of these he fell and broke his elbow, which is now partially ankylosed. He also cut his forehead to the bone. For the last two years he has been lying most of the time helpless in bed, and has had to be fed. His symptoms, mental and

convulsive, seemed to occur in cycles of about three weeks each. During the first week of the three he would be noisy, in the second he would be weeping and wailing, and during the third apathetic and almost unconscious. He rarely spoke. All the the children of this family were rhachitic. November 2, 1891, the boy was brought to my clinic in this third stage, and it seemed impossible to arouse him. He took mechanically most of what was put into his mouth. His bed was constantly soiled. His arms, and sometimes his legs, were nearly always in the athetoid condition, and any little disturbance would bring on a mild seizure, during which his arms were drawn up over his head. There were no scars over his motor areas. November 7, 1891, the operation was carried out at clinic. A long incision was made to the left of the middle line, and after a first opening of the trephine a long strip of bone, 1 cm. wide and 13 cm. long, was removed just to the left of the longitudinal sinus. The operation had to be discontinued because of collapse. The patient stopped breathing, nearly died on the table, and was revived with great difficulty. The wound was closed as rapidly as possible. He seemed better the same evening, but next day the athetosis continued; he became uneasy, and died, twenty-six hours after the operation, of shock.

CASE V.—S. P., aged nine years. This patient is of Russian-Jewish parentage, his father being an educated man, and the other children healthy. He presents a defective skull-development, especially over the left frontal lobe; is imbecile and epileptic; has seizures coming on about every five days. His forehead slopes backward so as to give him somewhat the appearance of an Aztec child. Mentally he is an imbecile, mutters half a dozen words, staggers about the room, but in disposition is good-natured and even confiding. He was operated upon November 14, 1891, at my clinic. In this instance I varied the ordinary procedure in that I laid up a V-shaped frontal flap, its apex reaching nearly to the vertex of the skull, its extremities extending nearly to the external angular processes. Then a small trephine was applied on each side of the middle line; the opening thus made was connected across the longitudinal sinus, and then two strips of bone were excised in a direction parallel to the scalp-incisions, by which considerable spring was given to the frontal bone and the fragments of others attached to it. The operation proceeded without incident, and the first dressing was not made until eight days later, when perfect union was found. The immediate effects in this case were not very pronounced; the seizures, however, became less frequent and less severe, and when the boy left the hospital a few weeks later he had lost his staggering gait, and his various actions and attempted speech showed much more fixedness of purpose than was previously the case. But at the end of a year the results in his case have to me been astounding. He has had no fit for three months, and within a week or two was again exhibited at my clinic. He came up to me and publicly asked in clear and distinct tones whether he could go to school. I held some conversation with him before my class, in order to show that he was capable of rational thought and rational and even accurate conversation. In addition to this he has developed physically, and his face now has a really intelligent expression, whereas a year ago it was expressionless.

CASE VI.—C. S., aged twelve years, of Warren, Pa., was sent to me by Dr. Baker. This child was also an imbecile, speaking but few words, being at times irascible, and having at times frequent epileptic seizures. There was partial paresis of the left arm, although she used it more or less. In her case there was great asymmetry, there being a great depression over the right side. She was operated on the same day as the previous case at a special clinic given for these two cases, and a strip of bone about 1 cm. wide was excised to the right of the middle line, extending well backward and forward into the frontal bone. The dura was not opened. At the first dressing, one week later, perfect union of the wound was found, and a light dressing only was applied. A few hours later she got restless and tore this off, and then picked the wound open so that it gaped for its whole distance. It was immediately re-dressed after disinfection with hydrogen dioxide, but healed the second time by the slower process of granulation. During the few weeks of her stay in the hospital she improved a little. A letter from Dr. Baker, dated October 25, 1892, nearly a year later, states that "she is no better now than she was before operation. For the first three months after operation there was a marked lessening in the number of paroxysms, but for the last three months the convulsions have been both severe and frequent, she having several daily. She is in much the same condition mentally that she was before operation."

From the foregoing reports it will be seen that I have had six cases of this general character, of which two were promptly fatal, two have been practically unaltered, and two have been brilliantly successful beyond all expectation. Of the two fatal cases I can only say that they belong to a class of patients about whom in general we feel that death is vastly preferable to such a life, and while I think that the second case might have been benefited had he survived the shock, I regard the first as having been essentially and absolutely hopeless in every respect. Save in a purely personal sense, I have no regret for the operation, which was freely assented to by the parents. In fact, in every one of these cases the parents have been made fully aware of the difficulties and dangers, and have in every instance said that they would rather lose their children than see them live in the condition in which they were at the time of the operation.

The two cases in which no result has been noted I suppose must be regarded as belonging to the class of cerebral atrophies that have been stigmatized by Dr. Starr as essentially hopeless. In both of these cases the principal regret of the parents is that their children survived the operative ordeal.

Of the two successful cases any man might well feel proud as having contributed to such marvellous changes. They are of themselves sufficient reward and justification for a score of unsuccessful cases, and lend an element of hope in similar instances of which the profession should not be deprived.

CASE VII.—Since writing the foregoing I have operated upon an infant of fourteen months who was born during a natural labor, of a healthy mother who had borne other healthy children. The child shows no ordinary signs of rickets, but its fontanels closed very early, and it shows scarcely any more sign of intelligence than does a vegetable. It seems to recognize the difference between light and darkness, to have the sense of hearing reasonably acute, and is physically in good condition. Her principal evidence of life and activity is her constant crying at night, so that her mother told me that she has had practically no rest since the child was born. In this instance the father said to me, with tears in his eyes: "Do all you can, and be sure to do what you think is enough, without stinting operation; for I had rather bring the child away from the hospital in a coffin than in this condition." Operation was made the same way as in Case V, but the child, who stood the operation well, collapsed, and died suddenly the same evening.

Without prolonging this paper to too great an extent, I desire before closing to invite attention to a few conclusions, the results of my deliberate convictions and reflections upon this kind of work.

1st. We have not yet learned the possible limits of brain-surgery, so-called, or the possible limits to which we may with reasonable safety interfere with the functions of the brain or its component parts. Final knowledge in this respect will come probably rather through clinical experience than through experimental investigation.

2d. I have had a number of brain-cases whose history shows that at the time of reception of injury the symptoms were so serious and severe as to lead the medical attendants to consider the case hopeless, so that practically nothing was done. I wish to say all I can to condemn this apathetic course, and to urge that the most desperate case be attended to at once, with the same attention to detail as though it were quite hopeful in its outlook.

3d. In many of my own cases, and my experience is like that of many others, the mental or other disturbance that has finally led to operation has been allowed to run along, often for years and years, and patients have been brought to the surgeon only as a last resort. This course is as unwise in these cases as when we deal with malignant disease, and the profession generally should learn that the prognosis would be very much more favorable in such cases were they operated upon when these disturbances first make their appearance.

4th. Personal experience has convinced me that when I have erred in operating for epilepsy or psychic disturbance, it has been rather on the side of doing too little than too much. For instance, in one of the cases alluded to under the caption Epilepsy, in which no improvement was manifested, I am now sorry that I did not take out so much of the arm-center as to produce at least temporary paralysis of the arm. In other words, I have never regretted doing too much, but in several cases have regretted not doing more than was done.

5th. I wish again to insist upon the necessity of long-continued medicinal and dietetic treatment after these cases have passed out of the hands of the surgeon.

THE UNCERTAINTY OF DETECTING THE BACILLUS OF TYPHOID FEVER IN SUSPICIOUS DRINKING-WATER.

BY A. C. ABBOTT, M.D.,
FIRST ASSISTANT, LABORATORY OF HYGIENE, UNIVERSITY OF PENNSYLVANIA.

THERE is no task within the scope of sanitary work that is ordinarily beset with more difficulty and uncertainty than the tracing of an outbreak of typhoid fever to its exact source. In a number of well-known instances, however, a direct causal connection has been proved to exist between polluted water-supplies and these outbreaks. In these cases the evidence in favor of this opinion was sufficient to leave no room for doubt; but this is by no means the case with the great majority of outbreaks of this disease.

The appearance of typhoid fever in a community is ofttimes inexplicable, and in the course of investigation tending to discover its cause, it is customary for the water-supply to receive a relatively large proportion of attention, and when the disease appears in an epidemic form suspicion that is directed to the water-supply is not always without foundation; particularly is this the case in communities that are supplied with water from open streams that may receive in their course the sewage from human habitations.

Those elements that are essential to the life of the community and that are used in common by all individuals in the community are air and water.

On reliable grounds the air is discarded as a means of disseminating this disease, and it is not improbable that it is through the use of polluted waters that typhoid fever most frequently appears in an epidemic form. In order that this may be the case, it is essential that the water should have been polluted with the dejecta of a typhoid-fever patient, containing the specific germ of the disease; but, though this is true, it is exceedingly rare for the bacillus of typhoid fever to be detected in suspected water, and, as a rule, in the hands of reliable

analysts the results of these examinations are negative.

Though the literature on the subject is fairly rich in recorded bacteriological analyses in which the typhoid-fever organism is claimed to have been found in the water, there are, nevertheless, good grounds for doubt as to the accuracy of many of these assertions.

In the first place, suspicion is rarely or never directed to the water-supply until the epidemic is in full progress or on the wane, and as the period of incubation of typhoid fever appears to vary between fourteen and twenty-one days, it is plain that the organisms that caused the epidemic, assuming that they had been present in the water, may have disappeared from it by the time of examination.

If the pollution were continuous, which is rarely or never the case, one could reasonably expect to find the organisms present in any sample of the water that might be subjected to examination, but in most instances it is only temporary, and a sufficient interval usually elapses, therefore, between the time at which the typhoid-fever bacilli were present in the water, *i. e.*, the time when the infection occurred, and the appearance of the epidemic, for the water to have resumed its normal condition.

Another ground upon which some of the statements, to which reference has been made, may be doubted, is the exceptional difficulty, and at times, indeed, the impossibility of identifying this organism when present with other closely allied bacilli outside of the human body. The reason for this is that there is a group of other organisms, frequently present in the soil and water, the morphological and cultural peculiarities of which are so like those of the typhoid-fever bacillus obtained from the diseased human body, that their absolute differentiation is always a matter requiring extreme care.

One such organism recently appeared in the course of investigations by the writer in connection with the water-supply of a locality affected with typhoid fever, and had conclusions been drawn before it had been under observation for a relatively long time, they would have been false. The morphology of this organism and its cultural peculiarities were in many respects identical with those of the typhoid-bacillus. Its growth on potato was irregular, sometimes being visible, again invisible; it did not alter the color of blue litmus milk, nor did it cause fermentation of glucose, and it was actively motile. After one, two, or three days its colonies upon gelatin could not be distinguished from those of the bacillus of typhoid fever, so that at the end of this time it looked as if we had found the typhoid-bacillus in drinking-water.

At the end of a week, however, in looking over these cultures again, the growth on gelatin presented a somewhat different aspect, and the colonies on the plates seemed to be sunken and resting in very shallow depressions. Upon closer inspection it was found that a sort of liquefaction had taken place; this was so limited in extent as hardly to be recognizable, unless efforts were made to take up a portion of one of the colonies upon a needle; it could then be seen that instead of being fixed upon the gelatin, as is the case with the non-liquefying typhoid-organism, the colonies lay loosely in shallow semi-fluid pits. On repeating the experiment it was noticed that this organism when planted upon gelatin and kept at a temperature sufficiently high to admit of its growth, but not high enough to melt the gelatin, caused a peculiar form of liquefaction that did not appear before the sixth or seventh day. For this reason, in view of the features in which it is similar to the bacillus of typhoid fever, one might readily mistake this organism for it, if the observation is continued for only a period of three or four days.

The organism occasionally present in water that is most commonly confounded with the bacillus of typhoid fever, is the common bacillus of the colon —the bacterium coli commune—the presence of which in drinking-water is of almost as much value in pointing to pollution by human evacuations as are the indications offered by an excessive amount of chlorine as determined by chemical means. But this organism is now known to differ in certain essential respects from the bacillus of typhoid fever, so that its differentiation is a matter of less difficulty than was formerly the case.

There are few pathogenic organisms that are so simulated in many important respects by certain ordinary saprophytes as is the bacillus of typhoid fever. Its morphology is inconstant, and its growth upon special culture-media is now known to be less constant than was at one time supposed. Its growth on potato, originally described as being characterized by a prolific multiplication that was not visible to the naked eye, was believed to be diagnostic, but we now know that in this respect also it varies: at times growing invisibly, while again its development can be readily seen. Its growth in media containing soluble pigments; its development upon media made from the expressed juice of the potato; and its behavior toward media containing carbolic acid, have all in turn failed as absolute diagnostic tests for this organism. Unlike the great majority of other pathogenic bacteria, it is rare that pathological conditions analogous to those seen in the disease from which it is obtained can be produced, and in only a limited number of instances have efforts in this direction proved successful, and then only by special methods of inoculation.

For the reasons given, the bacteriologist who is

called upon to examine suspicious drinking-water should be familiar with all the peculiarities and variations of the true typhoid-bacillus as obtained directly from the spleen of a subject dead of this disease, and in the case of suspicious organisms their peculiarities should be constantly compared with a culture of the true typhoid-bacillus grown upon exactly the same medium and under similar circumstances. If one experiments with a pure culture of the bacillus of typhoid fever it will be found that within certain limits its biological characteristics undergo variations. Its morphology is most irregular: it will sometimes appear as short oval rods, while again it may be seen growing as much longer threads that will often extend across from $\frac{1}{8}$ to $\frac{1}{4}$ the field of the microscope; frequently both forms will appear in the same culture. Between these extremes of length all variations may be detected. When stained with the ordinary aniline dyes the cells often take up the staining in a peculiar and irregular way. They will at times appear to be colored at only one end or in the middle, the balance of the cell remaining unstained; again, irregular, clear, unstained points will be distributed through the protoplasm of the cell or may lie along its lateral margin and cause the stained cell to appear as if bits had been sharply punched out of it. A cell may contain one or several of these unstained areas. They are probably due to retraction of the protoplasm from the cell-envelop.

When stained by the special method for the demonstration of flagella, this organism is seen to be provided with delicate hair-like appendages, one or more times as long as the body of the cell itself, which radiate in all directions from the periphery of the cell. They are the locomotor apparatus of the organism and it is by their lashing movements that the organism possesses its high degree of motility when suspended in fluids.

The bacillus of typhoid fever does not form spores, though for a time after its discovery the colorless portions just referred to, and especially when they occupied one end of the cell, were mistaken for spores. When grown upon nutrient gelatin no liquefaction occurs; it does not develop very rapidly, and when the colonies are small and deep down in the gelatin they present but little or nothing that is characteristic. When on the surface of the gelatin, however, and of about 1 mm. in diameter, certain peculiarities of structure appear that aid considerably in the identification of the organism. To the naked eye the colonies now appear as slightly irregular, pale or bluish-white points that are somewhat elevated above the surface of the medium. Its borders are wavy and it is a little denser at the center than at the periphery. When slightly magnified it is seen to be irregularly marked by ridges and furrows. No better description of the colony at this stage can be given than that its ridges and furrows give to it an appearance very similar to that presented by the irregularities seen upon *bas-relief* maps employed for representing undulations upon the earth's surface. When planted upon sterilized potato and kept at a temperature of 37° C. the growth of this organism is most commonly invisible to the naked eye, and a multiplication of the bacilli planted can only be made out by microscopic examination of scrapings from the surface of the potato. In a fair number of cases, however, the growth is visible and can easily be seen. To what these differences are due it is impossible to say, but most probably they arise from differences in the potatoes employed.

When grown in milk there is no coagulation and no apparent change, though the development may be luxuriant. If blue litmus tincture is added to the milk the color is either not at all changed or else there is the faintest suggestion of pink, indicating a very limited production of acid. Of equal importance for the differentiation of this organism from others that simulate it is its behavior when grown in media to which glucose has been added; under no condition does it cause fermentation of glucose with liberation of gas, a peculiarity that is diametrically opposed to that of certain other organisms with which it might be confounded, particularly the bacterium coli commune, that in most respects is like the typhoid-bacillus and is probably the organism most often mistaken for it.

When grown in Dunham's peptone solution the bacillus of typhoid fever does not form indol, and the rose color, characteristic of this body, does not appear after the addition of either concentrated sulphuric acid alone, or of the acid and sodium nitrite.

The production of carbonic acid as a product of growth of this organism, though not definitely fixed in amount for constant conditions, has been noticed to be less than the amount produced by some of the organisms similar to it.

The common experience of those into whose hands it has fallen to differentiate bacteria that are similar to the typhoid-bacillus from the true typhoid bacillus is that it is a laborious task and one requiring the most conscientious work. From what has been said this will readily be understood, and, therefore, no single peculiarity should be taken alone as diagnostic, and unless the organism under consideration fulfils all the requirements noted it should be grouped in the class of so-called pseudo-typhoid bacilli—*i. e.*, that group of organisms that simulate the typhoid-bacillus, but which are not identical with it.

EARLY DIAGNOSIS ESSENTIAL FOR THE CURE OF UTERINE CANCER.

BY WILLIAM GOODELL, M.D.,
PROFESSOR OF GYNECOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

IN THE MEDICAL NEWS of December 5, 1891, I published an article on the radical treatment of uterine carcinoma. In it I contended that, for this deadly disease, the only trustworthy operation is the removal of the womb, and that, both in its immediate and in its remote results, it is an extremely satisfactory operation. Statistics were adduced to show the very low rate of mortality from this operation when performed in appropriate cases *per vaginam*, and not through an abdominal incision. These statistics also warranted the assertion that the remote or permanent success of this operation far exceeded that of all operations undertaken for carcinomata in all other parts of the body, the number of cures being surprisingly large. This success was attributed to the anatomical fact that the lips, breast, penis, and rectum—the favorite sites of cancer—are integral parts and parcels of the body; while the womb is to the body only an appendage. It is an organ not integral, but complemental—one which, as it were, is merely hung in the pelvis, and that by ligamentous bands of a mongrel tissue not homologous with that of the womb. The technique of the various operations for vaginal hysterectomy was also described, but the preference was given to that by the progressive catgut ligature.

A year's additional experience with this radical treatment of carcinoma of the uterus, so far from changing or even modifying the foregoing views, has served still further to confirm them, and I unhesitatingly urge this operation in every suitable case. But what is a suitable case of uterine cancer? It is, firstly, one in which the womb is removable; and, secondly, one in which an operation promises well, both in its immediate and in its remote results. A suitable case, therefore, is one in which the womb is not fixed, the vagina is free from all carcinomatous nodules, and the broad ligaments show no signs of infiltration. In other words, a suitable case is one in which the neoplasm is limited wholly to the womb. In such a typical case the operation is easy, safe, and curative.

Unfortunately, however, in the great proportion of cases that present themselves for the first time to the surgeon, the disease has become too far advanced. The growth has probably crept up the cervix and, penetrating its substance, has invaded the bladder or the vagina. It has travelled along the broad ligaments and deposited its germs outside of the womb. By this time the womb will be more or less fixed, and the bladder and the vagina firmly sealed to it. The surgeon, therefore, has either to reject the case or he has to perform a dangerous operation, which can be only palliative, and not curative. The gist, then, of a successful treatment lies in an early recognition of the cancer.

In a very large proportion of the cases the disease begins in the vaginal portion of the cervix. It does so because this part of the womb bears the brunt of the injuries sustained in coition and in parturition. The cancerous nodule, or ulcer, starts usually in the notch of a torn cervix, and it is, therefore, most commonly found in women who have borne children. I have not, indeed, to my recollection ever seen but a single case of cervical cancer in a virgin, and not more than three cases in sterile women. One of these three cases, although apparently an exception to the rule, singularly enough confirmed it. The lady had a submucous fibroid, which was slowly emerging from its uterine bed. After suffering much pain and losing much blood for several months she decided to call me in. I found the os uteri dilated to the size of a silver dollar, and crowning the protruding fibroid like a fetal head. The tumor was seized, wrenched from its bed, and delivered, but not without difficulty, as it was larger than the os uteri. A few months later carcinoma of the cervix set in.

The ordinary symptoms of carcinoma in the usual order of their appearance are: Pelvic pain, ichorous leucorrhea, hemorrhages, fetid discharges, and general cachexia. But, while these symptoms are characteristic, some of them may be absent, or their sequence may be variable. Thus, pain may not be present, or the malignant ulcer may first reveal itself by a hemorrhage; sometimes, indeed, by a general cachexia, which by rights should be the final symptom.

The symptoms on which the majority of physicians lay too much stress, and on which the laity wholly rely, are lancinating pains and fetid discharges. Now, very unfortunately for an early diagnosis, these symptoms rarely assert themselves until the disease has advanced too far for its radical treatment. The symptom of pain, which is so widely deemed essential to malignancy, is a very delusive one for the physician to lean upon. We all know how insensible the cervix uteri is to the knife and to the actual cautery. So, in the great majority of cases of cervical cancer, pain, as an exacting symptom, is absent in the earlier stages, and it claims attention only when the disease has attacked the sensitive uterine adnexa, or the still more sensitive uterine cavity. In some cases in which the endometrium has been invaded, the suffering is often excruciating, and I shall never forget the agony of one of my patients. For some weeks before her death she had to take daily by the mouth from 20 to 35 grains of morphine.

On the other hand, I have known women to die from the ravages of this cruel disease, who complained of nothing more than the ordinary female backache—that misleading canonical sacral pain from which every woman at some period of her life suffers. Hence, pain, especially of the lancinating variety, is not to be looked for as an invariable accompaniment of this disease. Most certainly it should not be considered pathognomonic of it.

Nor can the vaginal discharges be deemed more trustworthy evidences of malignancy. At the beginning, and often long after the onset of the disease, the discharges are not only not fetid, but they present no characteristic features whereby they can be distinguished from any ordinary leucorrhea. Later on, they usually become tinged with blood, like meat-washings; but even then they may be wholly free from any putrid odor. In point of fact, in its early stages there are no such tell-tale symptoms as would arrest the attention of the woman and arouse her alarm.

A digital examination is the only trustworthy way of arriving at a correct diagnosis, and this should never be neglected in any case of painful coition, stubborn pelvic pain, free leucorrhea, and especially of irregular uterine hemorrhages. In point of time a persistent leucorrheal discharge precedes every other visible symptom; but this is a disorder so common to the sex that it is generally disregarded. Irregular hemorrhages are practically the first appreciable manifestations of the disease, and they should always be looked upon with suspicion, especially when the woman is over thirty-five, and has borne children—I repeat it, *when she has borne children*—because, as previously stated, a cervical tear is the most common cause of malignant disease of the cervix.

A show of blood, however slight, following sexual intercourse should awaken suspicion, for it ought to convey the meaning that the male organ hits an open sore. Increased monthly flows, or the appearance of inter-menstrual shows, or blood-dribbling after an unusual exertion at the climacteric period, are warnings of grave import. But, perhaps, the most significant danger-signal of all is a counterfeited renewal of menstruation after its cessation. For instance: A woman at the age of forty-five ceases to menstruate; yet two years later she begins to have vaginal hemorrhages. Now, instead of being alarmed at these untimely shows of blood, the woman usually accepts them as a return of her monthly periods, and joyfully interprets them as meaning her rejuvenescence. Here, let me in one word say, that the traditional belief in climacteric hemorrhages, as such, is a delusion and a snare. The climacteric is not an entity that of itself begets the hemorrhages attending the change of life. But the carcinomata, the polypi, the fibroid tumors, the uterine vegetations, which start into activity in and about that period of life—these are the factors—these the entities. Irregular hemorrhages, then, at or after the menopause, are truly the red lights of warning to the alert physician, who will at once urge a vaginal examination, both for his own credit and for the sake of his patient.

In its earliest stages a carcinoma of the cervix usually appears as a hard nodule under the mucous coat of a torn cervix. Soon this breaks through its envelop and forms an open and indolent ulcer. Sometimes the exuberant vegetations on this sore cannot be told from the cockscomb granulations of a bad cervical tear, or indeed from those of a syphilitic ulcer, and the aid of the microscope may be needed. But usually the diagnosis is an easy one. The sharply defined rim of the crater-like sore, the friable vegetations that bleed on the slightest touch, and the dense hardness of the surrounding cervical tissue, tell the sad tale with unerring accuracy.

Whilst in the very large majority of cases, malignant disease of the cervix is the rule, yet malignant disease of the endometrium or of the body of the womb occasionally happens. It will then be met with under the form of sarcoma, of papilloma, or of epithelioma. Senile endometritis tends to this form of malignant degeneration, and it should, therefore, be combated at the outset. This is best done by the use of the sharp curette and by the subsequent packing of the uterine cavity with iodoform-gauze. Old maids and sterile wives are usually the victims. But fruitful women who have ceased to bear are not wholly exempt from supra-cervical carcinomata of the womb. In my private hospital, about a year ago, I successfully removed such diseased wombs from two ladies. One had borne three children and was fifty years old. The other one had given birth to ten children and had reached the age of sixty-three. In these two typical cases, neither a digital nor a speculum examination revealed any evidence of malignant disease. The cervix appeared perfectly healthy, both to the finger and to the eye. But in each one an obstinate leucorrhea had prevailed for a long time, followed later on by irregular blood-dribblings that lasted for several days at a time. The diagnosis was made by the curette, which removed bodies like boiled tapioca. This was confirmed by the microscope, which revealed in the one the cells of papillary carcinoma, in the other those of epithelioma. In neither of these cases has the disease returned.

These cases of cancer of the body of the womb are more successfully dealt with than those in which the ulcer begins on the cervix. The disease is less likely to return, for two reasons: Firstly, because the ulcer or the malignant growth, from its position,

more slowly invades adjacent structures, and is, therefore, more likely to be limited to uterine tissue. Secondly, because the woman, in these cases, has usually passed the climacteric, and the disease then is less liable to return after extirpation of the womb, than during the period of menstrual life, when the womb is more vascular and more succulent.

To sum up: In order to make an early diagnosis of uterine carcinoma, the physician, wholly ignoring the climacteric as an entity, must insist upon a digital and a speculum examination whenever his patient complains of any untoward or any unwonted pelvic symptom. More is learned by the finger than by the speculum, for in these cases one can feel more than one can see. Besides this, the speculum is liable to break off crumbling growths and to set up a troublesome hemorrhage. If the cervix is sound, and the discharges, whether bloody or leucorrheal, come from the uterine cavity, the curette must be used as an aid to the diagnosis. In all cases of doubt the microscope will render efficient help. When the diagnosis has been made, and that early enough to find the growth limited to the womb, there remains to the physician but one more duty—he must urge the immediate removal of the womb.

SURGICAL TREATMENT OF LABOR DELAYED BY RIGIDITY OF THE OS UTERI.

BY EDWARD P. DAVIS, M.D.,

PROFESSOR OF OBSTETRICS IN THE PHILADELPHIA POLYCLINIC; CLINICAL PROFESSOR OF DISEASES OF CHILDREN IN THE WOMAN'S MEDICAL COLLEGE; CLINICAL LECTURER ON OBSTETRICS IN THE JEFFERSON MEDICAL COLLEGE, ETC.

THERE is no more trying complication of labor for patient and for physician than persistent rigidity of the os uteri. Usual in very young or old primiparæ, it is occasionally encountered in multiparæ. In addition to prolonged labor, inducing exhaustion and greatly depressing the patient, this condition has positive and serious dangers, such as hemorrhage from extensive laceration, necrosis of the tissues long pressed upon, septic infection; and fetal death is also often a result of this complication.

The causes of this condition are pathologic processes in the cervix that have altered its normal consistence. Occasionally a rigid state seems congenital. Nature unassisted treats these cases in her usual conservative manner, or, in desperate conditions, by removal of the offending tissue. Usually after long-continued pressure by the bag of waters, the tissues yield gradually and the child is born, resulting in a moderate laceration of the cervix. The results of continued pressure by the fetal head will depend largely upon the presence or absence of the amniotic liquid; if the membranes have not ruptured, no serious damage of the uterine tissues can result. The amniotic liquid serves as an elastic protector of these tissues, and exerts an equable pressure in dilatation. If, however, the membranes have ruptured and the head presses immediately against the cervix, it will sooner or later interfere with the circulation of the part, and stasis, edema, and gradual necrosis will result.

In extreme cases nature removes the offending portion almost entire; thus, in a remarkable case reported by Keller (*Transactions of the Philadelphia Pathological Society*, 1857, vol, i, p. 17), several hours after labor a tumor was found protruding from the vulva; a ligature was applied around its base, and the tumor came away five days afterward. On examination this proved to be the healthy neck of the uterus which had been carried down by the child's head. The patient recovered and subsequently bore a living child in normal labor.

Cases in which the entire circle of the os uteri is thrown off during labor are not exceedingly rare; thus, Kennedy, of the Rotunda Hospital, reports (*British Medical Journal*, Aug. 17, 1872) the case of a multipara from whom was expelled a complete circular ring, three-eighths of an inch thick by one inch in breadth, which proved to be the detached os uteri. The labor proceeded rapidly, there was little hemorrhage, and the patient made a good recovery. The lochial discharge persisted longer than usual, and was somewhat offensive. Similar cases have been reported by others.

An immediate danger in these cases is that of hemorrhage; serious laceration of the cervix can scarcely occur without a profuse hemorrhage that may become fatal. It is not unusual for the cervix to be torn upon its left side, but Remy reports a case (*Archives de Tocologie*, October, 1887) in which almost fatal hemorrhage followed such a laceration. The following case illustrates an unusual form of hemorrhage in these cases:

A primipara of good general development and normal pelvis was in the first stage of what promised to be a normal labor; the cervix was rigid, but not sufficiently so to excite the apprehension of the attending physician. Labor pains persisted during the night; then, early in the morning, a sudden, profuse, arterial hemorrhage occurred. Making an examination, the attending physician could find no placenta previa; the os was but partly dilated; the membranes had but just ruptured; the bleeding seemed to come from the cervix, although no considerable laceration existed. A tampon wet in vinegar was at once applied, when the hemorrhage ceased. Seeing the patient shortly afterward in consultation, I removed the tampon and found that upon one side of the cervix the tissues had begun to tear, not from the os toward the body, but had separated upon the external surface of the cervix in an irregular, jagged tear; this had opened a branch of the uterine artery. The patient was anesthetized, the birth-canal thoroughly disinfected, and six or

eight incisions of from one-quarter to one-half an inch were made in the cervix around the lumen of the os; labor then proceeded, terminating normally. Mother and child made an uninterrupted recovery.

Traumatic hemorrhage following rigidity of the cervix may be developed during the puerperal period; thus, Barnes, in his *System of Obstetric Medicine*, edition 1885, p. 577, narrates a case in which profuse hemorrhage occurred while the os was undilated and the cervix rigid. Labor was induced, the os being dilated by the hand, and living twins were delivered. On the fifth day after labor the patient died from profuse hemorrhage. Rupture of the uterus was not present, but the long-continued pressure of the hand had produced contusion and necrosis of the os uteri; a portion of the cervix had sloughed off, leaving an ulcer which had opened the uterine artery.

Children perishing after a labor of this kind, present conditions of visceral hemorrhage, blood being extravasated in the parenchyma of all the large organs of the body.

The treatment of rigidity of the cervix consists first in an effort to secure those conditions that further dilatation. Thus the bowels should be thoroughly unloaded, if necessary by several copious, warm injections. For this purpose the following is efficient: hot castile soap-suds, one quart; castor oil, one ounce; to be thoroughly mixed; add to this one teaspoonful of spirits of turpentine thoroughly beaten up with the yelk of a raw egg; the whole to be thoroughly mixed and injected at a temperature not lower than 100°, the patient lying upon her left side. The use of a fountain syringe is to be preferred in giving this injection. If necessary, the patient should be catheterized. Further, the physician should ascertain that the presentation is favorable to dilatation; otherwise, version by external manipulation may be indicated, or the patient may be placed in a posture suitable to favor dilatation.

So long as the membranes are unruptured and the parts remain in their natural condition of temperature and moisture, the patient's nervous sufferings should be lessened as much as possible. Chloral hydrate may be given to advantage in doses of twenty grains by the mouth, or injected, dissolved in warm water and milk, into the rectum. This may be repeated in an hour, if desired. Antipyrin or phenacetin in small doses, one or two grains each, every two or three hours, is of assistance. When the patient is thoroughly tired, the membranes unruptured, the parts neither hot nor swollen, a hypodermatic injection of $\frac{1}{8}$ of a grain of morphine and $\frac{1}{120}$ of a grain of atropine will usually secure a brief period of sleep, and do much to lessen the subsequent suffering of the patient. The patient's strength should be supported by the administration of small quantities of easily-digested food. A few ounces of broth, milk, or cocoa, taken as hot as can be borne, will be found useful.

Local applications are of doubtful value; the old practice of smearing the cervix with belladonna ointment is scarcely efficient in comparison with other methods of treatment. Occasionally a rectal suppository of opium, belladonna, and iodoform, when the odor of the last is tolerated, is of considerable advantage. Hot vaginal douches containing boric acid, or creolin ½ per cent., given very gently, are of advantage. They may be repeated hourly, and have in my hands served a useful purpose.

While this period of labor calls for the exercise of great patience on the part of the physician and his patient, it likewise demands faithful observation of the conditions present. The heart-sounds of the fetus should be carefully listened for, so that any weakness may be promptly detected. The condition of the mother's parts, the rigidity of the uterus, and the development of a contraction-ring, are matters of which the physician should be cognizant. So soon as a reasonable time has elapsed without progressive dilatation, and in the failure of the means already described to promote this end, manual dilatation or incision of the cervix should be performed. For the first, the patient may be advantageously brought partly under the influence of chloroform. The vagina having been douched with creolin solution, and the hand of the physician having been thoroughly cleansed and soaked in the same solution, the hand is folded into the shape of a cone and the fingers are gently inserted within the os; by cautiously endeavoring to open the hand and gently moving the fingers around the circle of the os, it is possible to considerably stretch these tissues. Such efforts should be intermittent, preferably occurring with the uterine pains, and should not be continued until the tissues begin to be less moist and of higher temperature than normal. The rupture of the membranes in these cases requires careful discernment on the part of the physician; preferably, they should be left to rupture spontaneously, and the physician must be very sure that labor can be safely terminated within a comparatively short time before he thus brings the head directly to press upon the tissues of the os and cervix.

But when the cervix still remains undilated and rigid, and the condition has persisted until the patient's strength is failing, there can be no question of the propriety, under antiseptic precautions, of making multiple incisions into the cervix. While this procedure has met with more favor upon the continent of Europe than elsewhere, it shares with other surgical procedures the advantages of simplicity, directness, and prompt relief afforded by it;

but without the faithful employment of antiseptic precautions it is distinctly a dangerous method of treatment. The vagina and the physician's hands and his instruments having been thoroughly disinfected, the patient is preferably anesthetized, and with a probe-pointed bistoury or blunt-pointed scissors, one or two fingers are introduced to serve as a guide, and from four to eight incisions of one-quarter or one-eighth of an inch in length are made in the cervix uteri around the lumen of the os. It has been recommended that the longer incisions be at each side of the cervix, thus apparently imitating the process by which nature deals with these cases. After making these incisions, if the membranes have not been ruptured, it is well to rupture them, and to be prepared to terminate the labor by the use of the forceps, or, if indicated, by version.

In cases of premature labor, it must be remembered that the cervix lacks those physiologic changes that prepare it for dilatation at term; in such a case it is to be expected that rigidity will be encountered, and especial precautions must be taken to secure gradual dilatation.

The prognosis of labor complicated by rigidity of the cervix, when conducted under antiseptic precautions, closely approaches that of normal labor. In an extended study of these cases, Erdmann (*Archiv für Gynäkologie*, Band xxxix, Heft 1) finds that thorough antisepsis and prompt surgical interference reduce the mortality to practically that of labor in more favorable cases; recent Continental text-books of obstetrics recognize such treatment as indicated under the conditions that we have described.

SOME REMARKS ON PEPTIC ULCER, WITH SPECIAL REFERENCE TO TREATMENT.

BY FREDERICK C. SHATTUCK, M.D.,
PROFESSOR OF CLINICAL MEDICINE, HARVARD UNIVERSITY; PHYSICIAN TO THE MASSACHUSETTS HOSPITAL, ETC.

So long as our knowledge of the pathogeny of peptic ulcer of the stomach and duodenum is imperfect, so long at least must our treatment be more or less unsatisfactory, especially from the point of view of prevention. It is not uncommon for writers at the present day to consider peptic ulcers, whether gastric or duodenal, under one head; and yet there seem to be some points of marked difference between them—points for which we are as yet unable to give adequate explanation. I say *seem*, because there are those whose statistics do not bear out the generally accepted view with which my personal experience certainly coincides. If the gastric form is more common in young and anemic females of the servant class, while the duodenal is generally found in males, occurs at a later period of life, and is less frequently associated with anemia, how are we to explain the difference? Were it in our power to prevent anemia, gastric ulcers would develop far less frequently; but is it likely that much influence would then be exerted on the occurrence of duodenal ulceration? Taking life as we find it, the prospect is not brilliant for prophylaxis in this affection, and we must content ourselves with doing what we can to promote the recovery of those cases in which a diagnosis, at least probable, can be reached.

Clinically, cases can be divided into four classes: The first is that in which no symptoms ever occur. The existence of such cases is proved by the fact that either open ulcers or cicatrices are sometimes found in the bodies of individuals dying from accident or other cause wholly unconnected with the lesion under consideration. In these cases there can, of course, be no question of treatment, but they are important as showing that spontaneous cure may take place.

In the second class may be put those cases in which symptoms are entirely lacking until general perforative peritonitis, or hemorrhage, more or less profuse, appears. Local adhesive peritonitis is a more chronic process, and is usually associated with pain, though ulceration may extend into the pancreas or elsewhere without giving rise to any disturbance of which the patient is conscious. Early celiotomy offers the best chances of recovery from general perforative peritonitis, though these are not brilliant.

When hemorrhage is the first symptom, it is rarely immediately fatal; but its occurrence is diagnostic, provided that all other causes of bleeding from the upper digestive tract, aneurismal rupture, and the swallowing of blood derived from some part of the air-passages can be excluded. If such exclusion is practicable the case is at once removed from this to the fourth class.

The third class comprises those cases in which symptoms are present, but are simply those of indigestion, and in no way distinctive. Perhaps this class could be made much smaller in numbers if the degree of acidity of the gastric juice were tested in every case seeking advice for dyspepsia. As it is, these cases are and will long continue to be treated symptomatically by diet, in connection with pepsin, bismuth, hydrochloric acid, general tonics, etc., at least until some suggestive symptom appears, and then they also fall into the fourth class, with which it is the main purpose of this paper to deal.

This fourth class comprises all of those cases in which either the symptoms themselves or their grouping enables us to reach a diagnosis beyond reasonable doubt. From a therapeutic point of view these cases may, perhaps, be further subdivided into three classes.

a. The symptoms may be sufficiently characteristic, and yet of such moderate severity as to lead us to try to attempt alleviation and cure by the milder means of relative rest; a bland diet, moderate quantities at a time, at two or three hours intervals; large (teaspoonful) doses of sodic bicarbonate or other antacid, and chalybeates for the anemia. Seemingly good results are certainly thus attained in a considerable number of cases. Whether cicatrization of the ulcer is as permanent under this as under the more rigid treatment presently to be considered I do not know. I believe it would be more logical to adopt the severe treatment in all clear cases, but the logical and the practicable do not always coincide.

b. Hemorrhage may be so profuse and continued as to threaten death from asthenia. In such cases the indication is to keep the patient alive, treating him more with reference to his loss of blood than to the source from which it comes until the period of immediate danger seems to be passed.

c. In no small number of cases pain and vomiting are so troublesome, either by their long continuance, their severity, or both at once; or hemorrhage, without being at the moment alarmingly profuse, has been so frequent or has occurred for so long that the patient is incapacitated for work and ready to undergo any treatment which holds out the prospect of cure.

All assent to the broad principle of rest in the treatment of an ulcerated surface wherever situated. The healing of the gastric ulcer has a twofold source of delay: the peristalsis of the stomach during digestion, and the irritation of the free hydrochloric acid, which is likely to be excessive in amount in these cases. The first of these drawbacks is not operative in the duodenal form. No one disputes these facts, and everyone applies them in practice, but this application is, as a rule, far too limited, as it seems to me.

Some authorities make no mention of rectal alimentation; others advise it for a few days, either in place of, or as supplementary to, stomach feeding, which is cautious, in small quantities at frequent intervals, mainly of milk, and gradually increased. Ewald advises exclusive rectal alimentation for only three days. Rectal alimentation for several weeks is mentioned, but not especially enjoined. For at least five years I have treated every case of peptic ulcer with pronounced symptoms by absolute rest of the stomach, allowing only small quantities of water to enter it for at least a fortnight. At the end of that period milk prepared with peptogenic powder is given in dram doses every fifteen minutes, with gradual increase in the amount and lengthening of the intervals. Of course, absolute rest in bed is enforced to lessen the demand of the system for nourishment and warmth. One by one the nutrient enemata are withdrawn as the gastric feeding is increased in amount and variety, the whole duration of treatment being usually from four to eight weeks. Pain and vomiting cease promptly with the cessation of gastric secretion and activity, and I have been led to believe that recovery is more complete and lasting than when food, however simple, is allowed to enter the stomach throughout or at earlier periods of treatment. Whenever it was practicable, I have had patients weighed before and at the completion of the fast, and have been surprised at the smallness of the loss in weight. A cleansing enema of soap and water is given daily to promote the absorptive power of the bowel, which receives once in six hours a raw egg, an ounce of expressed beef-juice, and enough fully peptonized milk to make six ounces. To this a few drops of laudanum are added if there is irritability of the rectum. Of course, we have no means of determining the size of the ulcer; and whether even a small ulcer can heal in a fortnight I do not know; but it seems rational to believe that more progress can be made in fourteen than in three days, and in most cases the fourteen can be prolonged to twenty-one, twenty-eight, or more, without risk of a high degree of innutrition. In one case of presumable duodenal ulcer, seen in private consulting practice, the patient was for thirty-five days fed exclusively by the rectum, and made a good recovery, remaining well for the two years which have since elapsed.

It will be seen that the aim of this paper is simply to advocate a more thorough and prolonged application of the principle of rest in peptic ulcer than is urged in the books, in the belief that thereby the chances of prompt and permanent recovery are materially increased. That drugs have any real influence in promoting the healing process there seems to be no evidence.

A NEW METHOD FOR THE CULTURE OF DIPHTHERIA-BACILLI IN HARD-BOILED EGGS.[1]

BY WYATT JOHNSTON, M.D.,
OF MONTREAL.

ALL who have had experience in the diagnosis of diphtheria by culture-methods agree in praising their accuracy and promptitude. Unfortunately, the general practitioner, who must feel most of all the need of some accurate method for the prompt diagnosis of doubtful cases, does not seem disposed to avail himself of the new process, and the prophecy of Roux and Yersin, that the method would come into general use, appears still to be far from fulfilment.

Thinking that the chief obstacle lay in the dif-

[1] From the Pathological Laboratory of McGill College.

ficulty of obtaining serum for the culture-medium, M. Sakharof[1] recently suggested a simple plan by which slices of hard-boiled eggs, cut with a sterilized knife and placed in sterilized tubes, could be made to replace the serum.

Of this method I have no personal experience, but should imagine that the main objection would still exist, as the physician might not have test-tubes about him at the time when they were most needed.

I have, during the past two months, made use of a method which may be regarded as a modification of Sakharof's, and which does away with the necessity both of test-tubes and the preparation of media before they are actually needed for use.

I employ hard-boiled eggs, from which a part of the shell is removed with ordinary forceps, after being tapped so as to break it. In this way shell and shell-membrane can readily be peeled off from one extremity (by selecting the narrow extremity the air-chamber is avoided), leaving a smooth, glistening, moist surface, which offers a most tempting spot for making cultures. These are made, as in the case of serum, by touching the diphtheritic exudation with a sterilized needle and drawing the latter lightly from three to six times across the exposed white of the egg. Instead of the regulation platinum needle mounted in a glass rod, I employ either an ordinary needle or a bit of silver suture-wire held in an artery forceps. To guard the culture against contamination the egg has only to be placed upside down in a common egg-cup; it can afterward be wrapped in paper and transported, if necessary. The interior of the cup can be sterilized, if desired, by allowing a flame to enter it for a second or two, though I have not found this necessary, as the nutrient surface does not come in contact with the inside of the cup. The egg and shell are, of course, both sterilized by the act of boiling.

Five minutes' boiling suffices, and if the operation has to be done "while you wait," the egg can be cooled in a still shorter time by placing it in cold water. Strict attention to aseptic details is unnecessary, as the diphtheria-bacillus outstrips in its growth the contaminating organisms likely to lead to confusion. The appearance of the diphtheria-colonies at the expiration of twenty-four hours is the same as when they are grown in serum, but I have found the growth even more rapid, so that a colony is already visible in twelve hours. Confusion with micrococci is, of course, to be guarded against. The reliability of this method seems to be the same as that of the methods of Haffter and E. Roux. I have found one bacillus which attains visible dimensions within the same period, but as this also grew on blood-serum in the manner characteristic of the diphtheria-bacillus, the great value of the method here described is not invalidated by that fact.

Although this minor modification of a now well-tried procedure might enable it to be employed by those destitute of laboratory outfits, I do not think it likely that this means of diagnosis will be utilized by physicians not habituated to laboratory methods.

It may be of interest to state here that the constant temperature of about 35° C., needful to insure the rapid and characteristic growth of the diphtheria-bacillus, can readily be obtained by placing in a cupboard or box with the culture, a large jar or pail of warm water, which is renewed from time to time, thus making an impromptu thermostat.

[1] Annales Inst. Pasteur, June, 1892.

ORIGINAL LECTURE.

UMBILICAL HERNIA; OPERATION; CURE.—LIGATION OF FEMORAL ARTERY FOR POPLITEAL ANEURISM; CURE.—FECAL FISTULA CAUSED BY APPENDICITIS; OPERATION; CURE.

Delivered at the Jefferson Medical College Hospital, April 6, 1892.

BY W. W. KEEN, M.D.,
PROFESSOR OF THE PRINCIPLES OF SURGERY AND OF CLINICAL SURGERY.

CASE I. *Umbilical hernia.*—The first case that I shall have the pleasure of showing you is one of umbilical hernia. A woman, Mrs. M. D., thirty-seven years of age, entered Jefferson Hospital March 28, 1892, with an umbilical hernia nearly the size of two fists. She is the mother of six children. At the sixth month of her fourth pregnancy, in 1882, an umbilical hernia appeared, and soon reached the size of a fist. From that time to the present she has suffered great discomfort, to such an extent as to prevent her from earning her living by labor, and hence she seeks relief by an operation.

You must remember, in regard to hernia, that it only indirectly threatens life. It is, of course, a positive danger, but strangulation may be remote or may never come. Hence, I think that we have no right to operate, even with the slight danger attending such operations, without a full knowledge of the facts on the part of the patient and his full consent. I have explained the facts of the case to this woman and told her that, while there is no great risk, yet there is some. This risk she willingly accepts, in view of her present disability and her future danger.

The woman is now before you. The abdomen has been thoroughly disinfected. This is especially important, as the operation involves the umbilicus, where dirt readily accumulates and is removed with difficulty. We have used here a 1 : 500 instead of a 1 : 1000 sublimate solution. You observe the tumor. I find that the ends of two fingers can be readily passed through the wide umbilical ring. The parts are so flabby that it is difficult to make the incision quickly or neatly. I

enter the sac and find that the bowel is not adherent. Having opened the sac, I find that the ring readily admits three fingers. The belly wall is so thin that the best result will be attained by freshening the edges of the ring, sewing them together, and then applying a ligature around the sac. I shall not cut out the umbilicus (omphalectomy). When I commenced the operation I had intended to do an omphalectomy, but you must remember that no surgeon, before he opens an abdomen, can tell exactly what he is going to do, and you must never be so wedded to a preconceived purpose that you will not change it if you see good reason to do so.

Having removed a strip of tissue from the entire edge of the ring, I wash out the abdominal cavity, to remove the blood that has got in. When I was a student, and for a long time afterward in fact, the peritoneum was the great surgical bug-bear. To-day you see it invaded with impunity. In fact, I believe it to be even more tolerant than most other tissues, but on one condition only, viz., that your aseptic and antiseptic technique is rigidly carried out. It is one vast lymph-sac and will absorb a good deal of blood without trouble, but at the same time I believe in giving the peritoneum as little to do as possible. I use the water quite warm, and this is an advantage, as the shock is thus lessened.

A large flat pad of gauze being placed under the opening, I am now ready to introduce the stitches. In doing so great care must be exercised that the intestine is not injured; the gauze pad is here a great help, while at the same time it absorbs the blood caused by the punctures. I have now closed the peritoneal cavity and shall next dissect out and remove most of the sac. You see how corded its internal surface is from the presence of connective-tissue fibers. I also remove a large piece of redundant skin and am now ready to close the wound. In doing so, I include in the sutures the borders of what is left of the sac, which will tend to fix it more firmly and so prevent any recurrence of the hernia.

As you will note, the patient has a flabby belly. When I remove the sutures, and possibly before, I shall support the abdomen by adhesive straps, and certainly by a firm binder, and when she gets up at the end of three weeks or a longer period, I shall make her wear an elastic belt for months or a year or two, so as to support the abdominal wall.

[NOTE.—Her highest subsequent temperature was 99°, and she made a speedy recovery. Since leaving the hospital she has returned on account of the discharge of three of the silk ligatures. The hernia remains cured.]

CASE II. *Ligation of the superficial femoral artery for popliteal aneurism.*—The next patient is one that you have already seen. It is the case of popliteal aneurism which I have already twice attempted to cure, but failed each time. I brought the patient before you four weeks ago and tried forced flexion, flexing the heel to the buttock, securing it there by a bandage around the bent leg and thigh, and also by attaching the heel of a slipper on the foot to a bandage around the waist. In this way I kept the artery closed for one week, but failed to effect a cure. It took ten days to overcome the contraction of the limb which followed this treatment. Next I tried the effect of instrumental compression. This also resulted in absolute failure, as the man could not bear the pressure. He is very anxious for a radical operation and a cure as speedily as possible. We could try one other method, namely, Esmarch's bandage, but he is so anxious for operation that I shall ligate the femoral artery at once. You have once before seen this operation done during the present session, by my colleague, Professor Brinton, in the case of the man on whom Mr. Bryant, of London, lectured, who in that case advised the adoption of other than operative measures before resorting to ligature, and rightly so, for they are less dangerous and often effect a cure. You will notice, however, that in both cases those measures have failed, and we must come to the cutting operation.

The patient, J. B., is a man fifty-four years of age, who entered Jefferson Hospital March 7, 1892. In 1864 he contracted syphilis, but has never had any violent secondary symptoms. He is a night watchman in a chemical works, and has to make eleven rounds, aggregating 1584 steps every night! Six months ago he noticed a small tumor in the left popliteal space, which has progressively increased in size and has caused increased pain. On examination a distinct swelling is found filling most of the popliteal space, pulsating synchronously with the pulse and ceasing upon pressure on the femoral artery. The case illustrates well two of the most frequent causes of aneurism—syphilis and the wear and tear on the arterial walls caused by the constant bending of the artery at the knee by reason of his occupation.

This chart will serve to recall to your minds the position of the femoral artery. Under the middle of Poupart's ligament runs the common femoral artery. I like this method of designation—the *common* femoral—much better than *the* femoral. Then the common femoral divides into the *superficial femoral* and the *deep femoral* or profunda femoris arteries. Important as it is anatomically to distinguish between the common, the superficial, and the deep femoral, it is still more important surgically. Ligation of the common femoral—that is, the portion extending from Poupart's ligament down to the bifurcation—is an exceedingly dangerous operation. As a general rule, I should prefer to ligate the external iliac, as it is a safer operation. You will remember that the profunda femoris, or deep femoral, comes off from the common femoral, an inch and a half below Poupart's ligament. About an inch and a half further down, that is three inches below Poupart's ligament, is the apex of Scarpa's triangle, which is formed by the sartorius muscle on the outside, the adductor longus on the inside, and Poupart's ligament above. I shall fix the position of the artery by touch, and draw a line from that point to the internal condyle of the femur. This will give the line of the artery, and I shall make a point three inches below Poupart's ligament, the center of an incision three inches long. I shall then dissect down through the skin, superficial and deep fasciæ until I reach the sartorius muscle. Pushing the muscle to the outside, I expect to readily find the superficial femoral artery in its sheath.

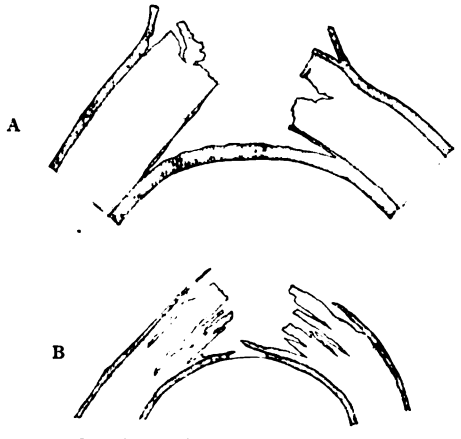
Having found the artery, I shall separate it from the vein with scrupulous care. The femoral vein is very large. At the groin it lies immediately inside the artery, but it very quickly takes a quarter of a turn, so that at the

apex of Scarpa's triangle, the vein is already behind the artery. It is of the utmost importance that the vein be not wounded.

Having separated the artery from the vein, then came the questions: What material shall we tie with? what force shall we employ? and what knot shall we use? The material that I shall use is the floss silk of the dentists. I use it because it is soft and spreads out into a flatter band than twisted or braided silk, and so brings larger surfaces of the inner coat of the artery into contact, and also because its fluffiness favors the entanglement of its threads, and so prevents any slipping of the first knot while the second is being made. Each of these is an important factor in securing occlusion of the artery. I also use it because it has been so strongly recommended by Ballance and Edmunds in their recent magnificent work on the *Ligation of Arteries in Continuity*. This work is the result of years of research, experiment, and investigation, and is entitled to profound respect. Mr. Ballance, especially, has already shown himself to be such a thoroughly good surgeon in other matters, that I have the greatest respect for his views.

In tying the artery I shall use only sufficient force to approximate the surfaces of the intima, but not enough to rupture the internal or middle tunics. Following the teaching of Mr. Jones, a century ago, it has been the almost universal practice among surgeons to tie with such force as to cut through the middle and the internal coats. In fact, you will generally see the surgeon, or his assistant, tie with all the force he can use short of breaking his thread. If you look in the work to which I have alluded, you will be surprised to find how thin a layer there is between the ligature and eternity, when the artery is tied in this way. (See Fig. 1).

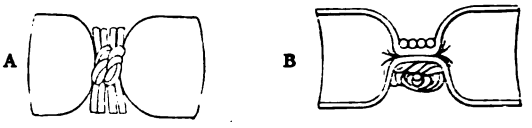
FIG. 1.



Injuries inflicted upon human arteries by a ligature. A, common femoral; B, subclavian (third part) showing how little even of the external coat was unruptured. (BALLANCE and EDMUNDS.)

You should also note the fact pointed out by these authors, that Listerian practice has diminished the dangers of ligation of the arteries very little, for the very reason that we have been applying too much force to the ligatures. The researches of Ballance and Edmunds have settled this point, and settled it in favor of such force as will approximate the intima, but will not rupture the two inner coats. This approximation should be by *surfaces* and not be a mere *linear occlusion*. Surface adhesion of the intima is even more important than the subsequent formation of occluding thrombi. (Fig. 2.) They

FIG. 2.

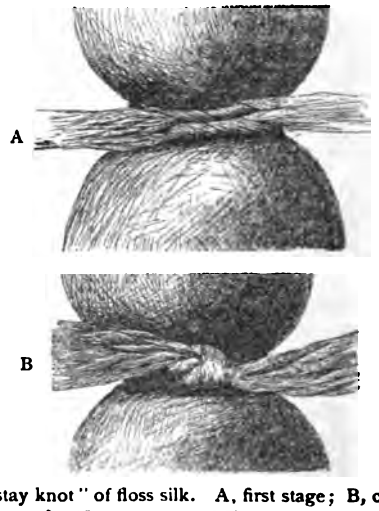


The application of four ligatures. A, external view; B, appearance on section, showing the approximation of a long portion of the surfaces of the tunica intima. (BALLANCE and EDMUNDS.)

very properly appeal to Nature, as Dr. J. Collins Warren, of Boston, has also done in his admirable book on the *Healing of Arteries*. When, for instance, Nature closes the umbilical artery, the internal or middle coat is not ruptured. When other arterial canals are closed pathologically, there is no rupture of the internal or middle coat. The intima is simply approximated, a proliferation of cells takes place, and the vessel is transformed into a cord. In tying the femoral artery, then, I shall employ only a force that is sufficient to simply bring the internal walls in contact. This will require a force of about two pounds.

In securing the ligatures in this case, I shall employ what Ballance and Edmunds term the "stay knot." (Fig. 3.) In this knot two or more ligatures are applied

FIG. 3.



The "stay knot" of floss silk. A, first stage; B, completed. (BALLANCE and EDMUNDS.)

side by side. On each one of them an ordinary single knot, with two turns, is made and the ends laid down. A similar knot is then tied on the other ligatures. The ends of both ligatures are then taken together and drawn upon equally, and the second knot is tied as though they were but one thread. If there are multiple ligatures they are tied in pairs. The double ligature of floss silk thus brings in contact a large surface of the intima.

Last evening, in Bridgeport, Conn., I made an address at the Centennial Celebration of the Fairfield County

Medical Society. It is interesting to note that this Society has seen every artery in the body tied for the first time, with the exception of the femoral. In 1785, John Hunter tied the femoral artery, but there was not another artery tied in its continuity until 1803, when the carotid artery was ligated by Abernethy, and the other arteries were tied at later periods. Therefore, in the life of this one Society, there has been seen an enormous progress in this one department of surgery.

We shall now proceed to ligate the artery. You must be careful to locate Poupart's ligament accurately. Do not depend upon the eye, but place one finger on the anterior superior spinous process of the ilium and another on the symphysis (not the spine) of the pubes, and midway between these two points will be found the artery. I next measure downward three inches, and here you should be careful to measure exactly, for if you depend upon the eye you will probably get far too low—into Hunter's canal, instead of at the apex of Scarpa's triangle. Having determined this point, I make an incision a little obliquely to the line of the artery, and I at once come to the inner edge of the sartorius muscle, and just under its border I find the vessels in the common sheath. I shall disturb the sheath of the artery as little as possible, and I do not want to see the vein at all. I approach the artery from the inside rather than from the outside, because the vein lies to the inner side and behind. I now pass the double floss silk ligature and tie in the manner described, without having even seen the vein, and with very little mechanical disturbance of the sheath.

The operation is done, but the case is not yet cured. These are two very different things. For at least ten days after I have tied the femoral artery I am anxious. At the end of this time the parts have become so consolidated that there is little risk of secondary hemorrhage. There is also a possibility that gangrene may follow the cutting off of so large a portion of the blood-supply of the leg. The limb will be enveloped in cotton, and surrounded by hot-water bags, in order to keep up the heat of the part, and so tend to prevent gangrene.

[NOTE.—Recovery was immediate and complete. On the sixth day after ligation pulsation was detected in the dorsalis pedis artery, through the collateral circulation. In October, 1892, the aneurism was still cured, and he was at work.]

CASE III. *Fecal fistula following an abscess from appendicitis; operation; cure.*—The next case is one of unusual interest and probably of unusual difficulty. It is that of the young man whom I showed you a week ago with a fecal fistula in the right loin. I propose to make an incision and trace the fistula to its source, but after we get a large wound with possibly a small opening at the mouth of the fistula, the question arises in my mind, If I cannot easily *see* this fistula, how shall I follow it? In order to overcome this difficulty, I have provided a bag filled with hydrogen, and if I find difficulty in following the sinus I shall inflate the colon through the rectum and note where the gas bubbles into the wound. Air would answer just as well, but hydrogen being lighter, will escape more readily.

The patient states that on March 20, 1891, he had an attack of appendicitis. A large swelling formed in the right iliac region and rapidly extended upward and backward into the lumbar region. Ten days later it was opened to the right of the first lumbar spine, when pus, gas, and feces escaped, and have continued to discharge ever since. By the way, one of our English friends recently remarked at a meeting of a medical society that this word appendicitis "might be American, but it was not English." It may not be English, but for all that it is a very good word and is rapidly being adopted both in England and on the Continent. It applies to a distinct condition and it will live, especially as it gives greater precision to our language, and, therefore, to our thinking.

What I propose to do is to follow the sinus to its source, and then do whatever may seem to be necessary. I first slit up the sinuses from the four openings and find that they all unite in one rather wide track, which is so evident that the hydrogen will not be needed. On extending the cut in the line of this sinus and exploring it, I find that my finger readily enters the colon and thus discloses the source of the fecal discharge.

This formation of a fecal fistula, is a rather unusual termination of appendicitis, and yet, curiously enough, we have in the wards, at this moment, a second case in an old woman whose general health forbids interference, in whom exactly the same condition exists. It should be to you another lesson in favor of early rather than delayed operation in those cases in which an abscess forms. Not only may the abscess burst into the general peritoneal cavity, but it may evacuate itself through the rectum, the bladder, the vagina, or, as in this case, externally, and may, at the same time, burst into the colon. Even as to life itself, spontaneous external evacuation is the most dangerous, and as it carries with it, even if the patient recovers, the danger of a fecal fistula, it is to be avoided. Sometimes such an abscess, if the abscess runs upward, may even perforate the diaphragm and the pus may be discharged through the bronchial tubes.

Besides this sinus leading to the colon, I find an offshoot which goes down, parallel with the crest of the ilium and then with Poupart's ligament to the site of the appendix. Laying this open widely, I make a search for the appendix, but cannot find it, as it is covered in at some unknown point by a mass of adhesions and new tissue. In following the sinus toward the appendix you notice that the peritoneal cavity has been opened, and this adds a serious complication to the case, in view of the difficulty we may have to keep such a wound free from infection in case the attempt to close the fistula in the colon is unsuccessful. The opening in the peritoneum was unavoidable, and I shall close it at once with some stitches in order to diminish the danger as much as possible. The search for the appendix being fruitless, and it being fairly evident that there is no escape of fecal matter through the appendix, I curette liberally the surface of the sinus and then turn my attention to the colon.

The opening in the colon is large enough to admit my forefinger. It is bound to the surrounding tissues by rigid adhesions which are very difficult to break up, and even when this is done I find difficulty in approximating the edges. However, the attempt must be made if the fistula is to be cured. All the margins of the opening are freshened, and then I introduce six Lembert stitches of silk and draw the edges together, invaginating

their borders. Considerable force has to be used in order to approximate the edges, on account of the widespread and dense adhesions, and I am very much afraid that they will ulcerate before sufficient adhesions form to close the opening.

Now that this stage of the operation is finished, you can appreciate what an immense wound this is. It stretches from near the spinal column, all the way around to the middle of Poupart's ligament, and is thirteen inches in length.

FIG 4.

Photograph of the wound when healed. The figure to the right shows the front view; that to the left is the reflection of his back in a looking-glass. The two show the entire length of the wound. (Photographed by Dr. C. A. Weaver, Jefferson College Hospital.)

[NOTE.—The entire wound healed by first intention, except posteriorly, where, on the fourth day, feces reappeared in small quantities in the wound. After a few days, however, this discharge ceased and the wound healed. It reopened later for a brief period, but now (November 20, 1892) has been healed for some months, and apparently permanently.]

CLINICAL MEMORANDUM.

A CASE OF EXTREME PUERPERAL ANEMIA AND NEPHRITIS; DELIVERY AT TERM WITH FORCEPS APPLIED, UNDER CHLOROFORM, ABOVE THE SUPERIOR STRAIT; RECOVERY OF MOTHER AND CHILD.

BY HARRIS A. SLOCUM, M.D.,
PROFESSOR OF GYNECOLOGY IN THE PHILADELPHIA POLYCLINIC; VISITING GYNECOLOGIST TO ST. CLEMENT'S.

THIS case is reported to show what extremes a pregnant woman may reach in those conditions that, by education and experience, we dread to encounter; and the means that, in this instance at least, were successful in enabling the mother to reach term and be delivered of a living child.

Mrs. M. P. was married at the age of sixteen years and six months. Menstruation began at fifteen. Her last period was on January 3, 1892, conception probably taking place about January 14th. By the 2d of February morning sickness had begun, gradually increasing until the end of the month, when vomiting occurred and quickly increased, so that everything taken into the stomach was rejected. She rapidly lost flesh and color, and when I first saw her at my office on March 26th she was so emaciated and weak that I was apprehensive about her ability to reach home in safety.

The bowels were inactive, and a preparation of malt with cascara was given, with cerium oxalate for the nausea. The cascara was partially successful, but the cerium oxalate had no effect.

The urine was pale, with a tinge of smoky red, and contained 1 per cent. of albumin. The specific gravity was 1004; the quantity averaged twenty ounces in twenty-four hours. The microscopic examination showed red corpuscles greatly disintegrated, small blood plaques, many pus and young epithelial cells, hyaline, granular, and epithelial casts, and hyaline disks. Severe occipital and frontal headache, marked pain throughout the lower half of the abdomen and pelvis, constant nausea and vomiting, and progressive emaciation and pallor, when considered in relation with the urine analysis, brought the case within the range of early operative interference.

Having had good results from the use of theobromine sodio-salicylate in acute nephritis, I determined to test its value here, and gave her capsules containing seven and one-half grains every four hours. This was followed so quickly by the disappearance of the pelvic and abdominal pains and the occipital headache, and an increase of the urine to sixty ounces, that no reasonable doubt exists of its having been the useful factor.

She was put upon a strictly milk diet, but the vomiting did not cease until this was changed to peptonized milk. This was continued intermittently for several weeks, but as her sufferings diminished she became less careful, returning to solid food, contrary to advice, and paying the penalty of emesis and return of headache. At these returns her condition would become so alarming that I was several times on the point of inducing abortion, and would probably have done so if I had not known of her very great desire to have a living child. Before leaving the city, in the summer, I carefully went over the case with my assistant, Dr. Homer C. Bloom, and he agreed to hold himself in readiness to induce labor should it appear necessary.

During my absence the patient had another severe attack of vomiting and a return of all her old symptoms, and a physician near at hand was hurriedly summoned, who, not having the facts of the case in his possession, administered morphine, which resulted in intensifying her distress, and almost stopping the action of the kidneys altogether. Finding that she was growing rapidly worse, they sent for my assistant, who carried out the original treatment with success.

During September and October, until labor began, the urine contained about one-half of one per cent. of albumin, the specific gravity fluctuated between 1004 and 1012 and the daily amount between sixty and seventy-five ounces. At no time did the albumin disappear from the urine. On the contrary, the amount several times increased to semi-solidity on boiling, following a return to solid food and the upright posture.

On the 20th of October labor began. The pains were

very weak but very painful, and the patient soon lost her self-control and exhibited general twitchings, which became more marked as the day went on. At about 4.30 in the afternoon she seemed in imminent danger of eclampsia, and I determined to dilate and deliver under an anesthetic. Almost no dilatation had taken place since morning, the os barely admitting two fingers. Dr. Bloom administered chloroform, and with Barnes's dilators I enlarged the os to nearly full relaxation, and then waited to watch the effect of a contraction. These passed with no effect at engaging, and I then applied the forceps inside the uterus above the superior strait. In about twenty minutes the head was at the vulva, and was slowly and carefully delivered, and the forceps removed. The partly asphyxiated child was quickly resuscitated and the placenta expressed. This had hardly been done when the blood poured out of the uterus in a stream. Compressing the uterus with one hand on the abdomen, the other carried the nozzle of a syringe into the cavity, and hot water was injected against the walls. All blood-clots were quickly removed, and the uterus shut down, only to relax and again fill as soon as the hand was removed.

The same procedure was again tried with the same result—contraction and subsequent relaxation. Finding that the fundus did not rise beyond a certain point (about an inch below the umbilicus) I concluded to let it alone, and watched it for several minutes. No further enlargement taking place, the bandage was applied and the chloroform taken away. The bleeding ceased. If I had continued to follow the general rule to empty the uterus, I should have soon emptied all the blood of her body. The uterus gradually contracted, expelling clots until it reached its normal size. I saw mother and child December 1, and both are well.

This case illustrates the following points:

1st. A pregnant woman may present alarming symptoms of nephritis with great anemia and exhaustion, and yet go to term.

2d. The value of theobromine sodio-salicylate in aiding to bring this about (urea was increased by it), together with the use of peptonized milk as a food. (I believe we had here a merging of the nausea of nephritis into the nausea of pregnancy. The theobromine sodio-salicylate relieved the former, but had no effect upon the latter.)

3d. The danger of using morphine to relieve nausea in pregnancy without first ascertaining the condition of the kidneys.

4th. An instance in which the golden rule in post-partum hemorrhage—to "empty the uterus"—found an exception; for here the uterus was exhausted, and the clots formed the only means for closing the sinuses. There was not blood enough left in the body to stimulate the contracting centers.

MEDICAL PROGRESS.

Two Cases of Hemorrhagic Bacteremia in the Newborn.—TAVEL and QUERVAIN (*Centralbl. f. Bakteriol. u. Parasitenk.*, xii, 17, p. 577) have reported the case of a premature male child, in which infection of the umbilicus was noted a few days after birth. On the tenth day multiple and rather extensive hemorrhages took place beneath the skin. At the same time rigidity of the skin of the lower extremities was observed. The child died on the thirteenth day. At the post-mortem examination, in addition to the subcutaneous hemorrhages, the epidermis was found detached in places; a small amount of pus was present at the umbilicus; the pleural cavities contained bloody fluid; there was double hemorrhagic pneumonia; hemorrhages had taken place beneath the pleura and the mucous membrane of the stomach and intestines, and into the parenchyma of the kidney. In the blood from various sources, in the tissues of the various organs, and by cultivation streptococci were found in considerable numbers, with a small number of staphylococci. In a second case, also in a premature child, the signs of pneumonia appeared on the tenth day, and death took place on the twelfth day. At the post-mortem examination, double pneumonia was found; there were, besides, hemorrhages beneath the epicardium, beneath the dura mater, into the pia mater, into the cerebral substance, and into the ventricles. In the blood, by cultivation, and in sections of the lung-tissue, staphylococci aurei were found in great preponderance. The special feature of the cases resides in the occurrence of the hemorrhages, which cannot be ascribed to external influences, as the labors took place without instrumental intervention. The inference is clear that infection took place by the umbilicus. The infants, by reason of premature birth, were less able than mature children to resist the invasion and multiplication of the organisms.

Bilateral Oöphorectomy During Pregnancy.—POLAILLON (*Archives de Tocol. et de Gynécol.*, xix, 10, p. 727) has reported the case of a laundress, twenty-nine years old, who for six years had had an abdominal swelling. For three months there had been a sense of weakness and dyspnea. The woman came under observation shortly after having been suddenly seized with severe pain in the hypogastrium and in the loins, the abdomen becoming distended; so that the development of peritonitis was suspected. On examination, a fluctuating ovarian cyst was detected, filling the abdomen to the level of a line four or five fingers' breadth above the umbilicus. The pain was most intense in the left flank. On vaginal touch the cervix uteri was found soft, and a round elastic tumor, as large as an orange and apparently the body of the uterus, was detected occupying the concavity of the sacrum. Menstruation had been absent for five months. The general condition was bad; the patient was emaciated, suffering intense pain, vomiting, and having fever. Operation was decided upon. The left ovary was found cystic, degenerated, and as large as a kidney, with a lamelliform pedicle. The right tube was adherent to the cyst, and the corresponding ovary as large as a hen's egg, bosselated and cystic. There were numerous adhesions with the mesentery and with the bowel. The uterus was not disturbed. The operation was unattended with any unpleasant sequelæ. Later the signs of pregnancy became better defined and the uterus rose to its usual position. The patient was carefully watched; five and a half months after the operation labor set in and passed off without any complication.

Congenital Syphilis —ERLENMEYER (*Zeitschrift f. klin. Medicin*, xxi, 3 u. 4, p. 343) has reported seven interesting cases of congenital syphilis which he has studied in their relations to certain diseases of the nervous system. He expresses the view that late forms of congenital syphilis, so-called syphilis hereditaria tarda, may appear later than the twelfth year—that is hereditary syphilis may remain latent more than twelve years. Puberty, traumatism, and febrile affections may afford the necessary stimulation to arouse into activity a latent congenital syphilis. The law of Colles, that the mothers of children congenitally syphilitic through the fathers, is not without its limitations. Mothers that have given birth to congenitally syphilitic children may become syphilitic, though not necessarily. Immunity to syphilis is not identical with infection with syphilis. The law of Kassowitz as to the spontaneous gradual attenuation of the intensity of the syphilitic hereditary transmission is not absolute. Children born late may be infected in more intense degree than those born previously. Hereditary syphilis may alternate with the sexes; thus, if after the birth of a congenitally syphilitic child a non-syphilitic child of different sex is born, it is not proved that the capability of hereditary transmission through the father is exhausted. In arriving at a conclusion all of the children must be considered. Anti-syphilitic treatment of the parents exerts a most favorable influence upon subsequent children. A form of cerebral disease characterized by unilateral convulsions and lack of development is most commonly of syphilitic origin. The so-called cerebral paralysis of children and congenital epilepsy, with or without idiocy, are frequently dependent upon congenital syphilis.

Gout in a Child Eleven Years Old.—MABBOUX (*Lyon Médical*, 1892, No. 43, p. 264) has reported the case of a girl, eleven years old, in which, after a brief period of malaise, sore-throat, and difficulty in swallowing, pain, redness, and swelling appeared at the metatarso-phalangeal joint of the right great toe. On the following day, the symptoms subsided with the abruptness with which they had appeared, some discoloration, pain, and swelling, however, persisting. A day later, the great toe of the left foot became similarly involved. Forty-five grains of sodium salicylate were administered in twenty-four hours, and decided improvement followed. There was no doubt from the mode of onset, from the appearance of the affected parts, and from the progress of the case, that the condition was gout. There was no family history of gout on either the father's or on the mother's side. The father had, however, eighteen months previously, had an attack of the same kind as the child. The child did not suffer from migraine or from gastric disorder or from cutaneous eruptions; nor had menstruation occurred.

THERAPEUTIC NOTES.

Alumnol (HEINZ, *Internationale klin. Rundschau*, No. 44, 1892, p. 1807) is the name given to a sulphur combination of aluminium, a new antiseptic and astringent that possesses the property of penetration. It is a white or faintly pink, not hygroscopic powder, soluble in water and capable of being prepared in the form of ointments, plasters, varnishes, etc. The agent precipitates albumin, in an excess of which, however, it is soluble. On account of its penetrating property it commends itself especially for the treatment of gonorrhea. In the case of males a 1 per cent. solution may be employed; for the treatment of gonorrheal endometritis, sticks containing from 2 to 5 per cent. of alumnol may be used. In more concentrated proportions the agent is a cauterant. Alumnol is also useful in the irrigation of wounds or cavities, checking suppuration and secretion. Ordinarily, solutions of from ½ to 1 per cent. suffice; for abscess-cavities a 10 per cent. solution is to be preferred. The agent has proved especially useful in the treatment of the chronic inflammations and infiltrations of the skin. It may be conveniently applied by means of gauze or as a varnish. In dermatologic practice rather strong solutions (of from 10 to 20 and 50 per cent.) are required. Alumnol also has a field of usefulness in the treatment of diseases of the ear.

For the Night-sweats of Tuberculosis.—NEUSSER (*Jahresber. d. Rudolph-Stiftung*) has reported the results of the employment of potassium tellurate in the treatment of the night-sweats in a considerable number of cases of pulmonary tuberculosis. In the majority of cases the sweating was controlled or diminished. The usual dose was one-third of a grain given at bedtime. In some cases a tolerance to the drug became established, so that the dose had to be doubled. In exceptional cases the appetite seemed to be impaired as the result of the medication; in some cases, too, a narcotic effect seemed to be produced. Toxic or unpleasant manifestations were exceptional. Most of the cases were well advanced in the disease, and no influence upon the general condition was observed.—*Internationale klin. Rundschau*, 1892, No. 45, p. 1846.

The Treatment of Pernicious Anemia.—In a communication read before the Medico-Chirurgical Society of Edinburgh, GIBSON (*Edinburgh Medical Journal*, October, 1892, p. 329) presented the view of William Hunter that the manifestations of pernicious anemia are dependent upon excessive hemolysis, resulting from the presence of toxic matters in the gastro-intestinal tract, and that a rational therapeusis would consist in the administration of intestinal antiseptics. Governed by these views the treatment indicated was adopted in a case of pernicious anemia and in one of simple anemia, in both with excellent results. Two grains of beta-naphthol were given two or three times a day, in pill, after meals. To obviate the irritation sometimes occasioned by beta-naphthol, a preparation of bismuth, preferably the salicylate, may be given in conjunction with it.

For Ozena.—

℞.—Iodol.
Acid. tannic. } āā . . . . ℥ss.—M.
Acid. boric.
Ft. pulv.

S.—Use as snuff, at first five or six times a day, subsequently three times a day.

TURBAN, *Rif. Med.; Münch. med. Wochenschr.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, DECEMBER 10, 1892.

ETHYL BROMIDE AS AN ANESTHETIC.

DR. LEVIS, of this city, and DR. NUNNELEY, of England, were the first, we believe, to support very strongly the claims of ethyl bromide as an anesthetic, yet it has not grown into much favor here, chiefly because two persons died in this country from its effects a short time after its introduction into practice. These deaths, we have no doubt whatever, were directly due to carelessness—carelessness in the administration of the drug and carelessness in the selection of the sample. Moreover, we assert, with little hesitation, that ethyl bromide occupies at present a most satisfactory position as an anesthetic—a position, it is true, much below that of chloroform, much below that of ether, yet with bounds so exactly defined by the peculiar powers and defects of the agent, that its use in judicious hands is productive of the best results—of a narcosis at once easy, comfortable, and safe.[1]

The anesthesia, it must be at once observed, lasts but a few minutes, and cannot be renewed without difficulty and danger. Hence the cases that are suitable for the administration of ethyl bromide are these (we quote from KÖLLIKER, *Centralblatt für Chirurgie*, No. 20, 1891): (1) Incisions into abscesses; (2) Incisions into phlegmonous swellings, if they are not large; (3) Tenotomies; (4) When the thermo-cautery is used (angiomata, phagedena); (5) Extraction of foreign bodies; (6) Extirpation of small tumors; (7) Tuberculous joints, tuberculous ostitis, small lupous swellings. We may add that it is used largely in the extraction of teeth (PHILLIPPS, SCHEPS, SCHNEIDER). According to KÖLLIKER the dose for children ranges from five to ten grams; for adults, from ten to fifteen grams. The duration of the narcosis should be from one to three minutes.

Most important is the method of administration, and, as neglect and carelessness in this matter are attended with dangerous consequences, we shall go fully into this subject. We cannot do better than recommend here, with the modifications that a simpler case admits, PROF. KEEN'S paper on the organization of an operation (*American Journal of the Med. Sciences*, January, 1891), and, more especially, some valuable observations by DR. TURNBULL on MARION SIMS's fatal case with this drug (*N. Y. Med. Record*, 1880, vol. xvii, p. 439). The less elaborate directions needed in the present instance are thus described by KÖLLIKER: "We make precisely the same arrangements as when we are about to use chloroform, that is, we examine carefully the heart and lungs, and free the neck and trunk of close-fitting garments. The patient is kept lying down. All interruptions are sternly avoided, for it is important that the patient be free to yield at once to the odor of the ethyl bromide. Our chief care being to secure absolute quiet in the room, we proceed next to scatter a few drops only of the anesthetic in the mask (SKINNER'S), and in a second we pour in the whole quantity we intend to use, and lay the mask, as nearly full of vapor as possible, on the patient's face." We have but one thing to add, a direction we owe to v. ZIEMACKI (Langenbeck's *Archiv*, Bd. 42, 1891). The first four drops are intended for the first inhalations, to render them easy, for, be it observed, if the beginning of the anesthesia is unimpeded by choking and coughing on the part of the patient, unconsciousness comes on quickly. As a rule, anesthesia is complete in fifty or sixty seconds (KÖLLIKER). Upon this subject STERNFELD says: "With one exception I have

[1] Ethyl bromide, C_2H_5Br, must not be confounded with *ethylene* bromide, $C_2H_4Br_2$, a substance incomparably more dangerous and devoid of anesthetic powers. For accounts of such mistakes, cf. Hirsch, Therapeutische Monatshefte, 1888, p. 556; v. Ziemacki, supra, Lancet, 1891, p. 101.

always used, in giving this anesthestic, the mask (ESMARCH'S) in preference to other means, and with good results. I pour the ethyl bromide in drop by drop—a procedure that indeed delays the narcosis, but makes it much pleasanter for the patient. I cannot assent to the practice of using rather larger doses all at once, and then laying the mask closely over the mouth and nose" (*Münch. Med. Wochenschrift*, 1890). The truth seems to be that the anesthesia should be begun with small doses, and continued speedily with larger ones.

It is a good plan, on beginning, to bid the patient hold up an arm, for, obviously, anesthesia must be near when the limb falls. The pulse should be watched, certainly until anesthesia begins, and, better, throughout the operation.

Ethyl bromide must not be used in the following cases: (1) pulmonary tuberculosis, (2) marked anemia, (3) acute and chronic bronchitis, (4) emphysema, (5) heart-disease, (6) hysteria, (7) alcoholism; nor, unfortunately, on account of its tendency to cause spasm of the muscles, should it be used in (8) luxations, setting of bones, etc. For women and children it is warmly recommended. It appears to be less efficacious as an anesthetic in the case of robust men. We dissent from the opinion of some that it is useful in labor, for its tendency to cause muscular spasm is a valid objection to it here.

In conclusion, we append a short account of medical experience with ethyl bromide. Meanwhile one thing should be said before we take leave of the subject. It is that a practitioner is not justified in using ethyl bromide unless he knows that the sample he possesses is pure; and by pure we mean that it must not contain free bromine, that it must have been kept in a cool, dark place, unexposed to light and air. Lastly, but not least in importance, it must yield a characteristic, faintly ethereal odor, which by some is compared to the odor of garlic.

To come, then, to the practical knowledge of the drug, v. ZIEMACKI sums up an admirable paper with a report of 600 successful cases. In one the narcosis was prolonged to twenty-five minutes and 60 grams were used.

KASPROWICKZ reports 200 cases, and approves of it more for women and children than for men; SZUMANN, 120 successful cases; WESSLER, 41; ASCH, 200; GUNSBERG, 200. The last observer noticed epileptiform symptoms in the case of a drunkard, and calls attention to a fall of blood-pressure during the narcosis. PHILLIPPS recommends it in dentistry and in minor operations; SCHEPS (200 cases), ESCHRICHT, and SCHNEIDER are of the same opinion. SCHEPS insists that the preparation must be pure. WIEDEMANN and TSCHUNICHIN recommend it as entirely safe in labor. KÖLLIKER, whose paper no one can afford to neglect, says: "It often happens that the chief of a surgical clinic must debate with himself what anesthetic should be used for this or that minor operation. I believe that ethyl bromide is especially fitted for these cases." Not less laudatory is the opinion of STERNFELD: "I consider ethyl bromide perfectly safe if it be prepared in the present manner and used with attention to those rules and precautionary measures that cannot, indeed, be neglected in any case of anesthesia." It is worthy of remark that STERNFELD insists that these good results have been obtained by exacting the utmost purity in the composition of the drug.[1] After these praises we can add nothing so well as CHISHOLM'S opinion (*Maryland Med. Journ.*, 1883), summing up an experience of 400 cases, "that bromide of ethyl is the most perfect anesthetic for short, painful operations;" or MONTGOMERY'S, of the same class of operations, "I can safely claim to have administered it [ethyl bromide] in nearly five hundred cases, and I have seen none in whom there seemed to be any dangerous symptoms attending its use, while nausea and vomiting are rare results" (*Therapeutic Gazette*, June 15, 1892). Less favorable is the opinion of TERILLON, who noticed ugly symptoms of asphyxia; of BUXTON, who says, "the presence of these bodies (*i. e.*, bromoform, free bromine, phosphorus) renders the impure ethyl bromide singularly dangerous, and until we can be sure of the purity of any given sample I think we are scarcely justified in its use for anesthetic purposes."

There is an overwhelming force of opinion in favor of these statements respecting ethyl bromide: That under its influence patients slumber easily and wake quickly, that the effects are agreeable, that the circulation is not markedly affected in any way, and, lastly, that excitement is, at least, not more common and not more troublesome than in the case of gas.

[1] Sternfeld suggests the following simple test: "If a drop of ethyl bromide be let fall in a solution of potassium iodide 3 cm. deep, it should reach the bottom without being colored violet."

APPENDICITIS.

FOR some time past the journals have been crowded with articles upon appendicitis. Upon reading many of these it becomes evident that wide differences of opinion exist in regard to matters of vital moment in the treatment of this affection.

What should be the period of medical treatment? What should be done as to the use of opium? What as to the employment of salines? Should ice-bags be used locally, or are hot fomentations to be preferred? When does the case become purely surgical? Around these points the contest rages, and in regard to them there is much contention and disputation.

Under the designation of appendicitis are included many conditions of which inflammation of the appendix is almost invariably the first factor—conditions formerly spoken of as typhlitis, peri-typhlitis, para-typhlitis, etc. Primary inflammation of the cecum can occur, inflammation without antecedent appendicitis, but it is of infinite rarity.

KEEN describes five forms of appendicitis:

1. A mild inflammation, without pus-formation, which terminates in resolution.

2. Perforative cases, general peritonitis following the perforation. We here observe two varieties:

a. A fulminant form in which very early perforation occurs.

b. Mild symptoms for a considerable time, and suddenly a perforation.

3. Perforative cases, plastic peritonitis preceding the perforation, which plastic matter, for a time at least, shuts off pus from the peritoneal cavity.

4. Cases of slow abscess-formation, taking many weeks or even months to thoroughly develop. PARK tells us that this form "may assume tubercular characteristics."

5. Recurrent cases.

Cases of catarrhal inflammation of the mucous membrane of the appendix may be mild and get well with almost no trouble, and this is the history of a great majority of them, but they may become severe and end in most formidable disorders.

The position of the appendix renders it constantly liable to have forced into it some of the contents of the gut. This may get out without causing trouble, may induce a little pain and spasm, and then escape, or may be caught and incite inflammation.

The intestinal matter may contain hardened fecal masses or hard foreign bodies, but even if fluid, on entry into the appendix, hard agglutinations form during a prolonged retention by the absorption of the liquid elements.

In a mild catarrhal inflammation, swelling of the neck of the appendix will diminish and spasm will abate, and the cul-de-sac will empty itself, and the patient be cured. But the case may, unfortunately, progress in the wrong direction. Hard masses or pus may fill the appendix; muscular wall and peritoneal covering may inflame by contiguity of tissue, or the growth and extension of microörganisms; ulceration may occur, microbes or pressure causing local gangrene; abscess can form; gangrene can appear because of extensive infection, or of the pressure of the cecum on the distended appendix; death may end the drama by shock or septic peritonitis. Pus may form with marvellous rapidity. We have seen two pints produced by the fifth day of the disease.

Perforation is the usual cause of death. This condition was shown by MATTERSTOCK to exist in 132 out of 146 fatal cases.

Gangrene may be of early origin. WYETH operated fifty-one hours after the onset of an attack, and found gangrene. It is the worst of all complications, and may kill in a few hours, even before rupture. It induces widely diffused septic peritonitis and great shock.

How should appendicitis be treated? We should remember that even the apparently simplest cases may at any moment become intensely perilous; hence, in each and every case we must have everything ready for an operation at a moment's notice. In a mild case, we will wait awhile and treat it medically. Some use opium; others condemn it on the ground that it masks important symptoms, and so gives a false sense of security in the face of imminent danger. Some tell us to give salines; others assert that salines favor perforation. The truth seems to be between these two assertions. The bowels should be emptied in the beginning of the attack, as this relieves the cecum of pressure, drains serum from the inflamed area, and may allow the appendix to empty itself. But salines should not be continued; they should only be given in the acute stage. To continue them would favor perforation and prevent adhesions. Our object is to prevent perforation, and favor plastic peritonitis. Hence, as soon as the bowels are well emptied, it is advisable to use opium. This arrests vermicular motion,

allays pain, puts the parts at rest, and favors adhesion. Ice-bags externally do not favor adhesion, but warmth does; hence warm fomentations and turpentine are advisable.

When shall we operate? It is well not to hesitate too long, thus waiting until perforation occurs. In grave cases the advice holds, Operate at once; but in ordinary cases wait for a time. We may have to operate in from thirty-six to forty-eight hours, or even sooner. If the peritonitis at the end of forty-eight hours has distinctly advanced; if marked tenderness and some tumefaction are noted at McBurney's point; if high temperature persists, then operation must be prompt. If shock occurs, or sepsis becomes manifest, one cannot operate too early.

Recurrent appendicitis indicates operation, during the attack if indications exist, but at least after the cessation of the symptoms. Some condition probably exists in these cases, such as distention of the mouth of the appendix, which renders the occurrence of future seizures highly probable, and any one of them may kill.

The tendency of the best surgical thought in regard to appendicitis is toward an enlightened radicalism. One can often do more harm by not interfering surgically than by interfering. If we are uncertain about the existence of pus, and if the patient is in good condition, and not getting worse, it is wise to give him the benefit of the doubt and wait. If one is uncertain, and the condition of the patient is growing worse, an exploratory incision is certainly indicated. Each case is to some extent a law unto itself, and we cannot formulate a definite system of rules for all cases. Exceptions strew the path of almost every peremptory assertion, excepting it may be the following: Do not hesitate, if the symptoms are growing worse, to open and explore, and always operate if perforation, gangrene, or pus-formation is suspected. "The first duty of a physician in these cases is to call in a surgeon."

THE METRIC SYSTEM.

OUR attention is again called to this subject by a circular of "The New Decimal Association, established to promote the adoption of the decimal system of weights, measures, and coinage in the United Kingdom." Among the members of its general committee are fourteen peers and twenty-seven commoners. More significant, however, is the representation of "trades councils" (officials of labor unions), accountants, bankers, manufacturers, and foreign traders, the last testifying that the use of the old units of measure is injuring the British export trade, as the metric system has been adopted by no less than thirty-nine foreign countries, with a population of four hundred and twenty millions.

The apathy of the American people in regard to decimal reform is easily explained, when we consider that the arithmetical problems of the great majority of persons are almost entirely limited to money matters, in which we already enjoy the advantages of a scale of tens. But, in physiology, chemistry, pathology, and in other sciences, and in prescription-writing, medical men are frequently called upon to calculate in terms of length, weight, and volume, and are thus particularly interested in any proposed improvement in our system of denominate numbers.

Many and diverse are the arguments against the metric system. Conservatism appears in various guises, now warning us that mistakes of the druggist or physician may cause loss of life, or again lamenting that metric prescriptions will not fit four-ounce bottles. Even an appeal to race prejudice is made against the French, who originated the system. The almost inevitable errors in the survey of the terrestrial quadrant are exaggerated, and one writer would delay to infinity the adoption of this system by having "the mean of all possible meridians taken as a standard." It is said that the metric units are inconvenient in size—a statement betokening ignorance of or indifference to truth.

The conservatism of mere inertia is a small obstacle to the progressiveness of a profession that has made sweeping changes in therapeutics, and has revolutionized surgery in the lifetime of its youngest member. It is inconsistent, too, for a profession that stands ready to adopt "any old woman's remedy, or to borrow therapeutic agents from sectarian schools of medicine, from charlatans and from savage tribes, to condemn a system of weights and measures on account of its French origin. We must confess to a prejudice in favor of a system of denominate numbers founded on a measurement of our planet. We can scarcely imagine any other natural and tangible basis appropriate for world-wide use, unless it be the length of a standard pendulum beating in seconds, and this is almost the same as the meter. Probably not one in a hundred of our readers can recite the tables of denominate

numbers that we learned in school, yet we venture to say that a few hours' study of the metric system will permanently impress the corresponding tables on the mind of any intelligent person.

These, however, are theoretical arguments. How are they justified by practical results? We have already said that half the civilized and semi-civilized population of the world is using the new system. Pathologists are measuring animal cells and bacteria in micromillimeters instead of many-figured fractions of an inch, and the millimeter is growing in favor with histologists. Pelvimetry and the measurement of fetal diameters—in short, the quantitative part of the mechanism of labor—are expressed almost universally in centimeters. Chemists were quick to recognize the value of a simple scientific relationship between measurements of volume and units of weight, such as exists between the gram and cubic centimeter, and such as exists nowhere in the older systems. Even the translation of the centesimal results of quantitative analyses for clinical purposes into grains and ounces is rapidly becoming a thing of the past. Urine and other secretions are estimated in cubic centimeters (milliliters), urea, sugar, etc., in grams. The adoption of the metric system in the United States Pharmacopeia of 1880 may have been due to the enthusiasm awakened by a comparative novelty, but its exclusive use in the edition of 1890 is the result of a more gradual and substantial appreciation of its merits. Vulgar fractions of a grain are awkward expressions of dose, and between the conflicting tendencies to divide the grain into fifths, tenths, etc., on the one hand, and by powers of two on the other, manufacturing pharmacists are compromising on amounts corresponding to multiples and simple fractions of the milligram. Those physicians, moreover, who have broken with habit, and have used the gram, centigram, and milligram in prescribing, and the cubic centimeter and liter as liquid measures, are almost unanimous in the opinion that a return to the apothecary's system would be as much of a hardship as to go back to arithmetical computations in pounds, shillings, and pence.

CORRESPONDENCE.

THE DIAGNOSIS OF BOVINE TUBERCULOSIS.

To the Editor of THE MEDICAL NEWS,

SIR: THE MEDICAL NEWS of April 9th contained a letter from me, in which the value of tuberculin in the diagnosis of tuberculosis in cattle was considered, and reference was made to the slaughter of a number of tuberculous cows belonging to Mr. J. E. Gillingham.

At the time that the letter was written but a part of the cows that had reacted after the injection of tuberculin had been slaughtered, so that the results of the examination were incomplete.

It will be remembered that out of a total of seventy-nine animals tested with tuberculin, thirty reacted in a way that was taken to indicate tuberculosis; all of these, together with a few calves from diseased cows, have now been slaughtered. All of the animals that reacted proved, upon the post-mortem examination, to be tuberculous.

It does not seem necessary to give tables showing the reactions and results of the post-mortem examinations in each case, as two sample reactions were printed in my last letter. The elevation of temperature that follows the injection of tuberculin in a tuberculous animal comes on in from nine to sixteen hours, and reaches a point from one to six degrees above the normal. In some cases the temperature drops back to normal within a few hours, but in others the fever remains for several days. The second injection is always followed by a milder reaction than the first, even if a period of several days or a month intervenes.

It was found that the degree of reaction was not in proportion to the extent of the lesions, for animals in which the lesions were slight sometimes displayed marked reactions, while the reaction in animals with widespread tuberculosis was sometimes slight. We may thus say that tuberculin furnishes a poor index to the severity of a case of tuberculosis; by its use we can simply determine the presence of the disease. For this reason tuberculin does not entirely supplant physical examination in the diagnosis of tuberculosis of cattle, but both methods should be used together, and of the two the former is by far the more valuable and important. It is safe to say that by the most careful physical examination not 25 per cent. of the cases of tuberculosis among cattle can be detected, while by the use of tuberculin and physical examination together, all of them can be discovered.

In a recent physical examination of the cattle of the State Agricultural Experiment-Station herd, five cows were selected as being probable subjects of tuberculosis, and were ordered to be killed. My examination with tuberculin revealed but two animals that reacted, and only one of these had been marked as tuberculous. The two methods of examination thus coincided in but one case. The slaughter of the five cows in question showed but two cases of tuberculosis, the two which had reacted.

It is well known that the tuberculosis of cattle is contagious, and sometimes spreads rapidly, until an entire herd is diseased, and that the only way to check the progress of the disease is to destroy or remove all affected animals, enforce good hygiene, and thoroughly disinfect the stable. Heretofore it has been impossible to carry out the first of these measures, on account of the great difficulty in diagnosticating bovine tuberculosis in its early stages, and most of the attempts at eradication have been failures, or have occupied a number of years.

It is easy, then, to appreciate the great value of tuberculin to the veterinarian, and the good results that have followed its use in this country are exceedingly gratify-

ing. We have every reason to think that by its use herds can be cleared of tuberculosis, and in this way a great many cases in the human family can be prevented.

Very respectfully yours,

LEONARD PEARSON, B.S., M.D.

VETERINARY DEPARTMENT,
UNIVERSITY OF PENNSYLVANIA.

A KEELEY FALSITY EXPOSED.

To the Editor of THE MEDICAL NEWS,

SIR: Among the claims made by the venders of the Keeley nostrum is one that it has been indorsed by the Government, and is used in the Soldiers' and Sailors' Homes. This statement has been made repeatedly in a leading New York daily. It is misleading and mischievous, because the assertion of such high sanction might beguile some into a trustful—but soon proved trustless—confidence.

I have been asked as to the truth of this claim by some who have honored me with their cases, after a loss of time and treasure at the Keeley Institutes, and thinking it incredible that it should receive such prominent support, I procured proofs of its falsity, which are herewith presented:

SURGEON-GENERAL'S OFFICE.
WASHINGTON, July 20, 1892.

DR. J. B. MATTISON: The Surgeon-General instructs me to acknowledge the receipt of your letter of the 19th inst., and in reply to say that the Medical Department of the army has never had anything to do with Mr. Keeley or the people having in charge the so-called Keeley cure.

Very respectfully,
Your obedient servant,
CHARLES R. GREENLEAF,
Lieut.-Col. and Assist. Med. Purveyor, U. S. A.

NAVY DEPARTMENT,
BUREAU OF MEDICINE AND SURGERY.
WASHINGTON, November 25, 1892.

DR. J. B. MATTISON: You are respectfully informed that there are no Sailors' Homes under the cognizance of this Bureau, and that, to the best of its knowledge and belief, the Keeley cure is not, and has not been, in use at the U. S. Naval Home, Philadelphia, the only institution in the navy for the care of aged seamen.

Very respectfully,
J. MILLS BROWN,
Surgeon-General U. S. N.

SOLDIERS' AND SAILORS' HOME.
BATH, N. Y., September 14, 1892.

DEAR DOCTOR: I would say we have never used any of "Keeley Cure" in this Home.

Yours cordially,
T. O. BURLISON,
Surgeon.

SOLDIERS' AND SAILORS' HOME.
ERIE, PA., November 18, 1892.

DEAR DOCTOR: I would say that none of the Keeley nostrum has been adopted or used in this Home.

Very respectfully,
S. T. CHAPIN,
Surgeon.

SOLDIERS' HOSPITAL OF CONNECTICUT.
NOROTON HEIGHTS, October 11, 1892.

DEAR SIR: As regards this Home, no orders have been given to adopt the Keeley treatment. I regard it as one of the modern shrewd devices for fleecing the credulous and gullible public.

Very truly yours,
W. G. BROWNSON,
Surgeon.

NEW JERSEY HOME FOR DISABLED SOLDIERS.
KEARNEY, N. J., September 18, 1892.

DEAR DOCTOR: This Home has not adopted the Keeley treatment. Very sincerely yours,
ARCHIBALD MERCER,
Surgeon.

Verbum sap.

Respectfully,
J. B. MATTISON.

BROOKLYN, N. Y.

HYDRIATRIC OR HYDRIATIC?

To the Editor of THE MEDICAL NEWS,

SIR: THE MEDICAL NEWS has repeatedly corrected the word hydriatic, which I use, to hydriatric. I wish to state that not only is hydriatic not a false word, because its formation is correct, and because ἰατικός even is used by Greek writers, not to speak about the custom amongst German writers, but also because hydriatic expresses exactly what I wish to say, while hydriatric does not. Hydriatic method means a method healing with water—hydriatric a method of the water-healing art.

Respectfully, C. SIHLER.

CLEVELAND, OHIO, November 26, 1892.

[THE NEWS simply followed the command of the Sydenham Society's Lexicon, that of Foster, Billings, and others, but frankly confesses that it is not at all certain but that Dr. Sihler is substantially correct in his contention.—EDITOR THE MEDICAL NEWS.]

NEWS ITEMS.

Revision of the Code.—At the session of the American Medical Association, held in Detroit, Michigan, June 7, 1892, a committee to consider and advise concerning the revision of the Code of Ethics and the Constitution and By-laws of the Association was appointed. The committee desires that every practitioner should study anew the laws in question, and that each would then inform the chairman of the committee, Dr. Henry D. Holton, Brattleboro, Vt., whether he is in favor of any change, and, if so, exactly what change. In this connection we would recall attention to the editorial article in THE MEDICAL NEWS, Sept. 17, 1892.

Nostrums at the World's Fair.—Rule 15 of the pamphlet on Classification and Rules issued by the World's Columbian Exposition reads as follows: "Articles that are in any way dangerous or offensive, also patent medicines, nostrums, and empirical preparations whose ingredients are concealed, will not be admitted to the Exposition."

Dr. John Ridlon has been appointed Professor of Orthopedic Surgery in the Post-Graduate Medical School of Chicago.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will upon publication be liberally paid for, or 250 reprints will be furnished instead of payment, provided that the request for reprints be noted by the author at the top of the manuscript. When necessary to elucidate the text, illustrations will be provided without cost to the author.

Address the Editor: GEO. M. GOULD, M.D.,
1004 WALNUT STREET,
PHILADELPHIA.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, DECEMBER 17, 1892. No. 25.

ORIGINAL ARTICLES.

THE CLINICAL CHARACTERS AND DIAGNOSTIC SIGNIFICANCE OF TREMOR.[1]

BY CHARLES L. DANA, M.D.,
OF NEW YORK.

IN order to obtain data to form the basis of these remarks, I have studied the tremor in twenty-six cases of various forms of nervous disease. I have obtained tracings of these tremors by means of Dudgeon's sphygmograph, according to the method suggested by Dr. Peterson. I have compared my results with those of Wolfenden and Williams, Gowers, Horsley, Féré, Dutil, Marie, and Charcot.

It has seemed to me that I would do best to describe the various clinical characters of tremors, and then to indicate those that are present in different classes of nervous disease. In drawing my conclusions, I am aware that many problems yet remain to be worked out, and that what I may state must be largely provisional.

A study of the characteristics of tremor shows that they vary in frequency, form, amplitude, constancy, and location. These differences are indicated here:

Frequency.	Fine, from 8 to 12 per second. Coarse, from 3½ to 6½.
Form.	Vibratory, segmental or oscillatory, jerky.
Constancy.	Continuous, intermittent, intermittent and intentional.
Location.	General, hemiplegic, monoplegic, etc.

Taking up the subject of the frequency or rhythm of tremors, I believe that they should be divided into two classes only, the fine and the coarse. There are no medium-rate tremors, strictly speaking, as Dutil states. All fine tremors are simply a slowing of the normal rhythm of muscle-innervation; this normal rhythm is from 10 to 12 per second, usually 10, and fine tremors range from 8 to 10 per second, usually from 8½ to 9.

The causes of the variations have yet to be studied out. They depend somewhat on the sex, the age, the individual, the extremity affected, and the character of the neuroses, but not upon the amplitude of oscillation necessarily, as some have stated.

In a given individual the tremor of the foot, hand, finger, and chin will vary slightly, but not enough to change its character. (Figs. 1 and 2.)

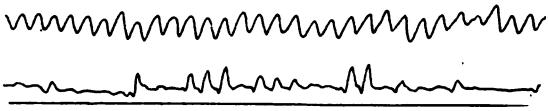
[1] Discussion before the N. Y. Neurological Society, December 6, 1892.

The coarse tremors are made up of a fusion of two, or at times three, normal innervations. The myograph, as Wolfenden and Williams show, often indicates this by a dicrotism or splitting of the

FIG. 1.

Paralysis agitans; age fifty-six; duration five years. Chin tremor, rate 5.4 per second.

FIG. 2.



Same case. Thumb-knuckle tremor, upper line, rate 5.2. Finger-tip tremor, lower line, rate 6.

curve. Coarse tremors are, therefore, often dicrotic; they number from 3½ to 6½ per second. In one of my myograms, tricrotism is shown (Fig. 3).

FIG. 3.

Paralysis agitans; age eighty; duration three years; disease advanced. Chin tremor, rate 3.3: showing tricrotism.

As to the form of the tremor, it can best be described as vibratory, segmental or oscillatory, and jerky. The vibratory tremor is one that involves the whole limb in a general quivering motion. It is always a fine tremor, and is seen typically in neurasthenic states. The segmental or oscillatory tremor affects one or more segments of the extremities, such as the thumb, the fingers, the hand, or the chin. As it becomes more pronounced the whole limb is involved, but the segments continue to have their special tremor. Such tremors are always coarse and are seen typically in paralysis agitans, senility, in some forms of sclerosis, and in severe forms of acute alcoholism. The jerky tremor is slow in rhythm and often more an incoordinate or clonic movement than a tremor.

As to the constancy of tremors, I find that the fine and vibratory tremors are generally continuous,

increasing with excitement, fatigue, or the increase of the toxemia, and increased by placing the muscle in a state of tension. The coarse and segmental tremors are intermittent in the sense that in any given segment or limb the motion may be stopped for a time, though some tremor is often present in some part of the body all the time.

The intermittent tremors are in some diseases lessened during volitional movements and are very marked when the limb is relaxed and resting. The only disease in which this occurs typically is paralysis agitans, but here it is not the absolute rule.

Other intermittent tremors increase on volitional movement and practically cease during rest ("intention tremors"). Such a tremor, when found, always indicates a sclerosis.

There are three things that modify the intensity of a tremor: putting the muscles in extension, in relaxation and rest, or in volitional movements. The first is a factor in functional and cortical neuroses; the second in degenerative spinal neuroses; the third in organic disease.

The rhythm of a coarse tremor can be estimated with a fair degree of accuracy by simply counting the vibrations in a definite time, say thirty seconds.

As regards the diagnostic significance of these various characteristics of tremor, and the assignment of different kinds to different neuroses, my conclusions are somewhat as follows:

In acquired neuroses and cortical neuroses, the tremor is fine, vibratory, continuous, and general. The rate is from 8 to 12 per second, averaging 10 or less.

Such neuroses are: Neurasthenia, congenital and hereditary tremor, occupation-neuroses, toxemic states (excluding, perhaps, mercurialism) and pronounced acute alcoholism, exophthalmic goiter, hysteria minor, epileptic trembling, and general paresis.[1]

FIG. 4.

Post-hemiplegic tremor with epilepsy. Hemiplegia at one and a half years; present age twenty-four. Epilepsy since childhood. Finger tip tremor, rate 4.8.

[1] The data collected by myself regarding the rate in these diseases are as follows:

Neurasthenia, rate 10, personal.

Hereditary tremor, 8-9, personal.

Toxic tremor, quinine 10, personal.

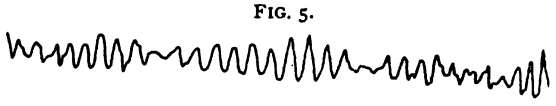
Alcoholism, 8-9, Charcot, Dutil; 8½-11½, Peterson; 6 2, personal.

Exophthalmic goiter, 8-9½, Charcot, Dutil, Marie; 8.7-12, Peterson; 10.8-11.5, Wolfenden and Williams; 8-9, personal.

Epileptic trembling, hand, 10; foot, 7, Féré.

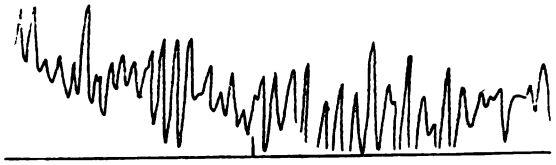
General paresis, 8-9½, Dutil; 10-12, Gowers.

FIG. 5.



Transverse myelitis; male, age forty. Toe tremor, 5.2 per second.

FIG. 6.

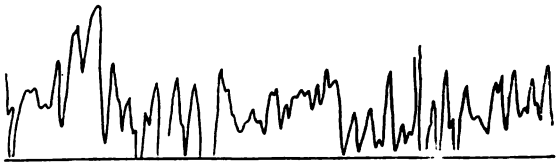


Transverse myelitis. Finger tremor, 5.

FIG. 7.

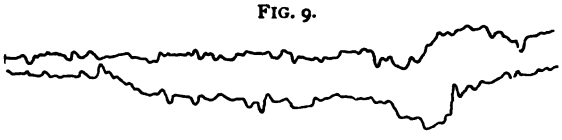
Post-hemiplegic tremor; embolism one year before; rate 11.5.

FIG. 8.



Exophthalmic goiter; male, age thirty-six; duration two years. Finger tremor, rate 9.5.

FIG. 9.

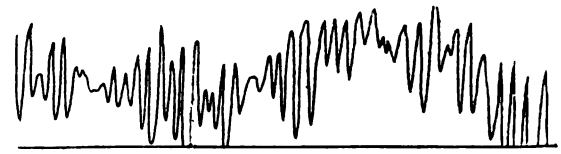


Exophthalmic goiter; female, aged eight; nearly cured; rate 12.

In degenerative neuroses the tremor is coarse, segmental, and intermittent; it usually affects one extremity or one-half of the body more than other parts. The rate is from 3½ to 6½—*i. e.*, either ⅓ or ½ of the normal rhythm.

The diseases in which this tremor is present are: Paralysis agitans, senile tremor, hysteria major, acute alcoholism of severe type.[1]

FIG 10.



Epilepsy with cortical degeneration. Finger tremor, rate 8.8.

[1] The data regarding the rate of this tremor are:

Paralysis agitans, 3-6, Charcot; 4-5½, Dutil; 5-6, Marie; 4.8-7, Gowers; 3.5-5.6, Peterson; 3-6½, personal (six cases by observations).

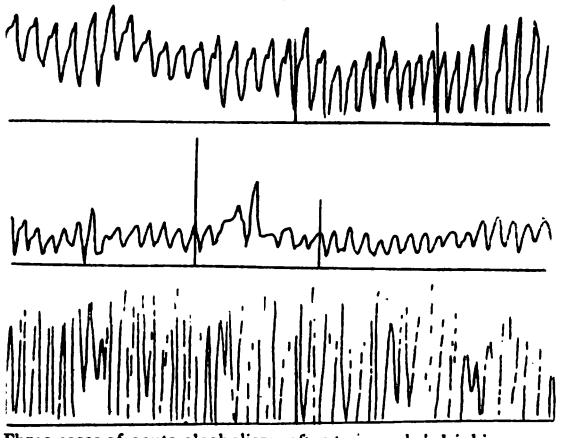
Hysteria, 5½-7½, Dutil; 7.6-7.8, Peterson.

Senile tremor, 4-5½, Dutil; 5.5, Wolfenden and Williams; 5, personal.

FIG. 11.

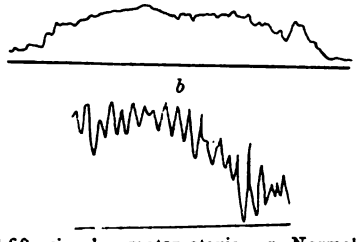
Neurasthenic tremor, rate 10 per second. Upper line neurasthenic; lower line normal.

FIG. 12.



Three cases of acute alcoholism, after two weeks' drinking; ages twenty-six, thirty-four, and thirty-five. Rate 6 per second.

FIG. 13.



Male, aged fifty-six; locomotor ataxia. *a*. Normal rhythm, 10 per second. *b*. Tremor rate, 8 per second.

Senile tremor is only the evidence of an irregular or more or less abortive form of paralysis agitans. In the examination of over 40 cases of very old people, which I was able to make through the kindness of Dr. S. N. Leo, I found no tremor except in 3 cases, and these were all, in my opinion, cases of paralysis agitans.

In the organic nervous diseases, tremor when present, and due to the lesion, is coarse, jerky, intermittent, and intentional, and confined to certain segments or limbs. The diseases in which such tremor is present are: Multiple sclerosis, lateral sclerosis from myelitis, descending cerebro-spinal (post-hemiplegic) sclerosis, and posterior sclerosis.[1]

[1] The data regarding the rate of this tremor are:

Multiple sclerosis, 4–5½, Dutil; 4.6–6.3, Peterson; 5.8, Wolfenden and Williams; 7–10, Charcot; 6–7, Gowers.

Lateral sclerosis (ankle-clonus), 5.2, Wolfenden and Williams; 6, Peterson; 8–10, Horsley; 6, personal.

Post-hemiplegic sclerosis, 5, personal; 10–12, personal.

Myelitis, 5–6, personal.

I append a memorandum of the rate of tremor in various diseases and in various parts of the body as found by myself:

Paralysis agitans, Case 1	chin	5.1
	head	4.8
	wrist	5.5
	thumb	5.2
Paralysis agitans, Case 2	hand	6.1
	toe	5.1
" " 3		5.5
" " 4		3
" " 5		3.2
" " 6		3½
Progressive muscular atrophy		5
Hemiplegia (infantile, with epilepsy)		4.8–5
" (adult, from embolism)		10–12
Epilepsy		8.5
" with cortical degeneration		8.8
Dementia and cortical degeneration		8.5–9
Myelitis	toe	5.2
	finger	5.6
Exophthalmic goiter		9.5–12
Hereditary tremor		10
Neurasthenia		10
Quinine tremor		10
Alcoholism, 4 cases		6–6.4
Tabes, Case 1		8
" " 2		8.6
Normal rhythm		10

SOME PRECAUTIONS AGAINST THE SPREAD OF CONTAGIOUS DISEASES, ESPECIALLY IN CHILDREN.

BY JOHN GRAHAM, M.D.,
OF PHILADELPHIA.

THE surgeon and the obstetrician utilize the means that experiment and observation have proved necessary to render their work aseptic. In case of the entrance of diseased germs, they take prompt means to destroy them, or to neutralize their effects. It behooves us, who practise among children suffering from contagious diseases, to inquire if we are equally careful.

The surgeon about to open an abdominal cavity removes all possible sources of infection from his patient's person and environment, and goes to his work with clean linen and clean hands. Do we do likewise?

Some time ago a prominent operator sent me an invitation to witness an abdominal section, adding in his note, "Provided you have not visited a case of scarlet fever or other contagious disease during the last twenty-four hours." I could not but think, If such precaution is necessary to insure the safety of this patient, what are the risks to the little children that I shall visit after seeing the case of scarlet fever or other contagious disease, and whose systems are fertile soils for the poison to develop in?

The danger of such conveyance is great, as physicians with large family practice know, and many, like myself, have been taught the lesson by sad ex-

perience. I can recall several instances in which the children of physicians have fallen victims to scarlet fever and diphtheria, the cause being clearly traced to disease brought home by their fathers.

Let me illustrate this danger by a description of a physician's visit to a case of diphtheria. The doctor enters the house, removes his hat, overcoat, and gloves, and is shown into the room containing the patient, and comes into direct contact with the atmosphere loaded with the germs of the disease. His hair, woollen clothing, hands, etc., must more or less absorb the poison, in his stay of about fifteen minutes. What does he then do? He replaces his overcoat, carefully buttoning it up, as if to keep as many of the germs as possible warm and well protected. He puts on his hat as he crosses the threshhold, jumps into his carriage, covers himself with robes, and drives to his next patient; enters, takes off his hat and coat, and woe to any little ones who live in that house! The doctor has probably that with him which will more likely kill than cure.

What should be done to diminish this danger? Stay no longer in a house containing a contagious disease than is absolutely necessary. Do not remove your hat or unbutton yout coat in that house. After examining the patient go down stairs, preferably at an open door or window, and give directions for treatment. The family of the patient will respect you for the care you exercise, when you explain the reason. Drive without covering with robes to your next patient, and be sure that patient is not a child. Never allow a messenger from a case of contagious disease to call or wait for you *in* your office. Instruct him to bring written messages and leave them at your door. If the messenger wishes to speak to you, tell him to wait outside your office and ask the servant to call you to the door.

I have more than once been startled on entering my office to see a man or woman whom I knew had been constantly for days and nights nursing a bad case of diphtheria, sitting complacently alongside of two or three little children, all waiting to see me. On several occasions mothers have brought children, suffering from severe attacks of diphtheria, to my office and waited to see me.

When you come home from a case of contagious disease, besides washing your hands, face, and head with soap and water, hang up your hat and coat in the air, and put on a fresh coat.

I did this some time ago and forgot to bring them in when I went to bed. It rained hard all night—but better lose a hat and coat than a patient!

If you return late at night from a case of contagious disease, besides washing, undress before going into the room where your children are. Keep your own children out of your office, and do not take them in the carriage with you when visiting patients. How do you know but some of your calls may be upon those with contagious diseases?

Our Board of Health instructs us, in cases of contagious disease, to forbid the children of the household to attend school or other places of public resort. This is a wise precaution, and the doctor, when he has been in contact with contagious disease, should, as far as possible, follow the advice given to the children.

We are told that familiarity with crime leads us to endure it. Likewise familiarity with contagious disease is likely to make us at times careless in using the means necessary to prevent its spread. Physicians are but mortals, and while as a body they are conscientious in the discharge of their duties, candor compels me to confess that they are not at all times as careful as they should be.

326 S. FIFTEENTH STREET.

THE TREATMENT OF HAY-FEVER BY MEANS OF COCAINE PHENATE.

BY D. BRADEN KYLE, M.D.,
OF PHILADELPHIA.

THE subject of hay-fever has been so thoroughly studied as to its etiology, pathology, and treatment, that one hesitates, even in the line of treatment, to bring forward anything new on the subject. The existence of many theories as to the cause, the pathology, and also of the various plans of treatment, points to the unsatisfactoriness of our treatment of this troublesome affection.

The theory advanced by Dr. Sajous appears to me to be the correct one—*i. e.*, that there are three essential features in the production of hay-fever: 1. An external irritant. 2. A predisposition on the part of the system to become influenced by this irritant. 3. A sensitive area through which the system becomes influenced by the irritant.

The best plan of treatment, both upon theoretic and practical grounds, is at once suggested—remove the sensitive area. Many patients object to the use of the cautery, and the physician has to resort to less radical treatment, the object of which should be to diminish the irritability of the sensitive areas. The chemical combination of carbolic acid and cocaine would appear to form an admirable drug for this purpose.

Having used with success the aqueous extract of witch-hazel (selected on account of its astringent properties), I combined cocaine phenate with this drug. As the cocaine is insoluble in the witch-hazel, I first dissolved the former in alcohol, and then added it in the desired proportion to the witch-hazel. The solutions used varied in strength from 1 to 10 per cent. The cases in which this combination was used were those that refused treatment by cauterization of the sensitive areas. They were

all characterized by the common symptoms of the disease, which are too well known to justify repetition. Three were cases in which the attacks were recent, that is, the disease appeared during the past year for the first time; and five cases varied from three to seven years in duration. In two there was hypertrophy of the middle turbinated, with marked thickening of the mucous membrane. In one there was slight deviation of the septum to the right; and in two cases there were marked asthmatic symptoms.

The plan of treatment was as follows: First, I cleansed the nasal mucous membrane with an alkaline solution. I then applied to the sensitive areas by means of cotton pledgets the 8 per cent. cocaine-solution, keeping this in contact with the parts for at least ten minutes, followed by a spray of a solution of the same strength. The result was a diminution of the hyperesthesia, lessened congestion, and relief of the constant coryza and sneezing that are so annoying in these cases. The treatment failed to benefit the cases in which there was marked hypertrophy. I then removed the thickened membrane, and the result was a partial relief.

In the cases in which the solution was injected into the sensitive areas the results were more rapid. This accorded with the theory that has been advanced that the drug coagulates the albumin in the tissues, thereby rendering absorption slow, and leaving the cocaine in contact with the tissues for a longer time, with lessening of the danger of systemic action.

The effect was most marked in the cases characterized by reflex asthmatic symptoms. In these a spray of the 8 per cent. solution was used. In one patient, who for three years had suffered for from four to six weeks during the attack, the treatment began with the first appearance of the trouble, and in five days all symptoms disappeared, not to return.

The results in the other case were equally good, with a slight return after the patient had taken a long drive, and with exposure to the emanations of ragweed. This was relieved by a few applications of the solution. This attack was slight, and characterized by a sensation of irritation, but by none of the marked symptoms that usually accompany this disease. Knowing how uncertain as to permanent results the treatment of hay-fever has been, we dare not draw too positive conclusions from these few cases. Possibly this treatment will only prove palliative, and the next season may be marked by a return of the disease, but even temporary relief is a source of great satisfaction. We are aware of the experience of others, who, after having used a certain plan of treatment successfully in many cases, were doomed to disappointment by their *sure* cure failing in the next case, and by their *permanent* cure being followed by a prompt return of the disease the next year.

1632 CHESTNUT STREET.

ORIGINAL LECTURE.

ENLARGEMENT OF THE LIVER DUE TO CARCINOMA, ASSOCIATED WITH STERCORAL CECITIS.

BY JAMES M. ANDERS, A.M., M.D.,
PROFESSOR OF MEDICINE AND CLINICAL MEDICINE IN THE MEDICO-CHIRURGICAL COLLEGE, OF PHILADELPHIA.

THE first case for our consideration this morning has the following history: A. M., seventy-seven years of age, by occupation a tailor, was admitted to the male medical wards of this hospital, October 1, 1892. His family history is entirely negative, but his personal history shows that he has been a sufferer from obstinate constipation for the last thirty years, and that at the age of seventeen he contracted venereal disease. He denies absolutely all syphilitic infection. His present complaint began three weeks prior to the date of his admission; and he attributes it to the use of a lawn-mower, the handle of which made pressure against his abdomen. The symptoms that arrested his attention were a feeling of soreness and dragging pains in the ileo-cecal region.

The symptoms described increased in severity until he entered the hospital, at which time there existed slight evidences of anemia and emaciation; the ankles were slightly edematous, and the stomach somewhat prominent. On making palpation of the abdomen, a sausage-shaped tumor was found, extending from the right iliac fossa in an upward direction for about five inches. This tumor-mass was somewhat doughy to the touch, and prolonged pressure with the end of the index-finger caused indubitable indentation. Just above this tumor the anterior surface of the liver could be felt and traced for the distance of two inches below the costal border. Its anterior surface presented a couple of small nodules or flattened protuberances. On making percussion, the liver-dulness extended two inches below the costal border, while between the lower limit of the liver-dulness and the upper edge of the sausage-shaped tumor-mass there was a rim of tympanitic resonance about two inches in width. Over the seat of this tumor-mass in the ileo-cecal region there was dulness on percussion.

The history of prolonged constipation in this patient's case; the symptoms of dragging and finally severe pain; the slight elevation of temperature, together with the evidence of the sausage-shaped tumor, occupying the ileo-cecal region, and extending for several inches in the direction of the ascending colon, pointed to the diagnosis of stercoral cecitis.

When the physical signs are well marked, there is very little likelihood of confounding this condition with any other, although in this connection we should always think of that grave affection, appendicitis, as this, in the majority of instances, also gives rise to a more or less well defined tumor-mass in the ileo-cecal region. The latter disease in its catarrhal form may be associated with cecitis, without giving rise to any of its more characteristic symptoms. We readily eliminate appendicitis, because the pain was not sufficiently severe, the temper-

ature not sufficiently elevated, and from the absence of any marked tenderness.

The treatment instituted had for its object the removal of the impacted feces. For this purpose simple large enemata were administered, at first at intervals of four hours, later less frequently. These were attended with the discharge of numerous small, hard fecal masses, with a resulting diminution in the dimensions of the tumor. In the course of five or six days the tumor had lost its characteristic shape; and in the region of the right iliac fossa there remained several hard nodules, which were supposed to be carcinomatous in nature. Irrigation of the bowels was, however, continued once daily for a period of one week, and, to my great astonishment, the hard nodules which we had supposed to be carcinomatous gradually disappeared; and now the physical signs referable both to the ileo-cecal region and the liver presented an altogether different aspect, corresponding exactly to the physical signs presented to-day. By palpation we can now readily trace the anterior surface of the liver down to the level of the umbilicus; we also distinctly discern a couple of nodules upon its anterior inferior surface. The edge of the liver is somewhat thickened. The dulness corresponds to the limits of the organ as made out by palpation. The narrow rim of tympanitic resonance lying between the sausage-shaped tumor below and the lower limit of the liver-dulness as made out on admission, must have been due to a coil of intestine lying between the liver and the abdominal wall, this having receded after thoroughly emptying the colon and cecum. In the ileo-cecal region there still remains muffled tympanitic resonance on percussion, while on palpation we feel a small, flattened, ill-defined tumor-mass. It is hardly possible that this will be removed by further irrigation of the bowel; neither can we ascribe its presence to chronic inflammatory changes due to primary attacks of cecitis or appendicitis, from the fact that there is no history bearing out this idea. During the last few days the patient has complained of occasional sharp lancinating pains in this location. To determine their nature, we must turn our attention briefly to the solution of the associated hepatic enlargement.

The liver, you know, may be enlarged from various causes, though in a few forms only do we see it associated with distinct new-growths on its surface; hence, conditions in which these latter do not appear, such as fatty liver, myeloid liver, hypertrophic cirrhosis, etc., may be eliminated at once. There is, however, danger of confounding a condition such as we have here with syphilitic disease of the organ, with hydatid cysts, and with abscess. In abscess the enlargement usually affects one portion of one lobe of the organ, the pus burrowing in the direction of least resistance; the prominences presented are usually smooth to the feel, and by-and-by we may detect fluctuation; the temperature-curves are peculiar and frequent, and we have the presence of rigors. We may, therefore, disregard the diagnosis of abscess in this case. If hydatid cysts are present, the organ usually enlarges only in certain directions; the protuberances presented assume the form of flattened hemispheres; their surface is smooth and hard; and much is to be gained from the history. Hydatids are thus eliminated in this particular case. To differentiate nodulation due to syphilitic disease of the organ is confessedly difficult. In a person who has arrived at the age of this patient, the diagnosis of syphilis of the liver cannot be made without the presence of a clear history of previous infection, and this appears to be wanting in this instance. We should also have such evidence of systemic infection as scars in the throat, irregularity of the surface of the bones—conditions which are also wanting in this case; we also have, sooner or later, contraction of the organ, giving rise, if the organ be still somewhat enlarged, to marked irregularities of its lower edge. Now, in the case before us, the organ is nearly uniformly enlarged; the right lobe more markedly than the left, however, with no evidence of eventual contraction met with in syphilitic disease. Within the last week, the patient has become slightly jaundiced. This symptom is more frequently present in carcinoma of the organ than in syphilis. We should also take into account the age of the patient, the progressive emaciation and anemia, and the edematous condition of the ankles—symptoms which belong to and are almost characteristic of carcinoma. The symptoms and physical signs, therefore, point to carcinoma of the liver.

It is exceedingly difficult to differentiate between carcinoma of the liver and carcinoma of other organs of the abdomen. I have seen one instance, in which the pyloric extremity of the stomach was carcinomatous and had become attached to the anterior surface of the liver, presenting a small mass at the lower edge of the liver, and supposed to be an outgrowth from this organ. On making palpation while the patient breathed deeply, it was found to move upward and downward as does the liver itself under these circumstances; but unless adherent to the organ, we may sometimes differentiate by the fact that tumors of other abdominal structures do not move downward when the patient makes a strong inspiratory effort.

It should be the aim of the physician to decide, if possible, whether or not the disease is primary or secondary. Primary carcinoma of the liver is so rare that in every instance the chances are in favor of its being secondary to carcinoma of other abdominal organs, though it is sometimes impossible to make out the primary seat of disease during life. In the present instance we may regard the ill-defined mass in the region of the cecum as the primary affection; but here we are in doubt as to whether it be really carcinoma of the cecum, of the ascending colon, or of other organs, particularly the mesenteric glands. It is well to remember that the primary seat of the disease may be in the rectum, which portion of the intestinal tract is more frequently affected than any other.

The course of this disease, more particularly after the liver presents several nodules, as in the case before us, is usually progressively downward, the duration being sometimes a few months only—hence the prognosis is grave.

The treatment is purely symptomatic—palliative and supportive. We shall, however, continue the enemata during the coming week, with a hope of diminishing still further the small mass remaining in the ileo-cecal region.

Autopsy, twelve hours after death. Body much emaciated. Liver fully twice its normal size; this enlarge-

ment was symmetrical, and the organ was studded with about fifty carcinomatous nodules. On section similar nodules were observed throughout the substance of the viscus. The spleen was normal in size, but much nodulated, in consequence of the presence of cicatricial bands, which sank a short distance through the parenchyma. The kidneys were normal. The pancreas was found to be only slightly enlarged, though containing two suspicious nodules in its interior. The mesenteric glands were enlarged; and these most probably constituted the small diffuse mass that could be felt after the fecal tumor had been removed.

CLINICAL MEMORANDA.

A CASE OF PLACENTA PREVIA CENTRALIS.[1]

BY J. NOER, M.D.,
STOUGHTON, WIS.

MRS. C. C. E., forty-one years old, had a severe attack of bronchitis some eight years ago; had an attack of hemoptysis a year and a half ago; had a mitral obstructive lesion of the heart, for which she has consulted me at various times during the past five years. The lower limbs have very extensive varicose veins. She has chronic bronchitis, hemorrhoids, and has been much troubled with edema of the lower extremities during pregnancy. Her general appearance is anemic; she is somewhat emaciated. The skin is of a pale-grayish tinge. She has had eight children; has never miscarried; and has always worked hard.

Shortly after midnight of June 7, 1891, I was called to attend Mrs. E. on account of severe "flowing." On my arrival I found the patient bleeding very profusely. A hypodermatic injection of ergotine, followed shortly by $\frac{1}{10}$ of a grain of morphine with $\frac{1}{150}$ of a grain of atropine, arrested the hemorrhage and brought about a favorable reaction in a short time. I found the patient to be in the latter half of the sixth month of pregnancy. Physical examination was negative as to the cause of hemorrhage. Mrs. E. said that she had done a great deal of hard work during the day and had felt as though something gave way in the afternoon while at work scrubbing the kitchen floor.

The patient remained in bed for three days, after which she was permitted to be up and about, but cautioned not to attempt to do housework or other manual labor. From this time on she continued to improve, so that in the course of a couple of weeks she was able to resume her household duties without any apparent injury to her health.

On July 8th, one month after the first hemorrhage, I was again called to attend Mrs. E. on account of hemorrhage. This time the bleeding was not so profuse, and had almost entirely subsided when I arrived, about twenty or thirty minutes after the first signs of hemorrhage. The patient was given small doses of morphine sulphate, grain $\frac{1}{8}$, atropine, grain $\frac{1}{150}$, every four hours; fluid extract of hydrastis canadensis, 10 minims, every six hours, and directed to remain absolutely quiet. In about four days she was permitted to sit up, but cautioned not to move about or attempt to walk or work. This time there was again no apparent cause for the hemorrhage. The cervix was soft and patulous, but the placenta could not be reached by digital examination. I felt certain that the case was one of placenta previa—marginal implantation—but as I could not, after the most searching digital exploration, find the margin of the placenta, I did not feel justified in inducing premature labor, which would have been the proper treatment, as will be readily seen from subsequent developments.

On July 19th the patient had another hemorrhage, which had ceased before I arrived, but she lost a very large amount of blood and appeared to be completely prostrated. I found the cervix soft and the os dilated to about the size of a silver dollar. A soft pulpy mass was felt to cover the entire area of the inner opening, establishing the diagnosis of placenta previa beyond the possibility of doubt. It was decided not to risk any more hemorrhages without making an attempt at prevention. My colleague, Dr. M. Iverson, was called in, and agreeing in the diagnosis, it was thought best to tampon and await the onset of pains, after which we would deliver by version.

On the morning of the following day the patient was, contrary to instructions, permitted to get up out of bed to use the vessel. The tampon was displaced and a most terrific hemorrhage resulted. On arrival, I found a chamber-vessel half full of clotted blood and the patient most thoroughly exsanguinated. The pulse was imperceptible at the wrist, and, but for the slow and labored respiratory movements, the patient had the appearance of a corpse. A hypodermatic injection of morphine, grain $\frac{1}{12}$, and atropine, grain $\frac{1}{100}$, was given at once. Stimulants were administered in small doses at short intervals and heat was applied to the extremities. In a few hours the pulse reappeared at the wrist and the patient began to show signs of animation. Atropine, grain $\frac{1}{100}$, was given hyperdermatically three times—at intervals of half an hour, an hour, and two hours, respectively. Morphine was given only once. As soon as the patient rallied I administered a warm ½ per cent. creolin vaginal injection, and tamponed the vagina through a Sims speculum, packing aseptic cotton in and around the open cervix as thoroughly as possible. I applied a T-bandage and left her at rest, continuing the stimulants in moderate quantities.

On the following morning, July 21st, the patient expressed herself as feeling quite well. Slight pains were coming on at regular intervals, increasing in force and frequency during the forenoon. At 1 P.M. I deemed them of sufficient force to warrant operative interference, and accordingly sent for Dr. Iverson to assist me.

Removing the tampon, the os was found to be dilated to a diameter of about two and half or three inches. The placenta could be distinctly felt covering the entire opening, but we thought we could feel the margin toward the right side. The child lay with its back toward the left side of the mother's abdomen, the right shoulder to her right side, the left to her left side. The liquor amnii seemed abundant and the child easily movable. The pelvis was large and not deformed. With the view of saving the mother, and if possible also the child, I decided to turn as rapidly as possible by combined external and internal manipulation. As the patient had lost a great deal of blood, was very feeble,

[1] Read at the meeting of the Central Wisconsin Medical Society, June 28, 1892.

and had a mitral lesion of the heart, it was decided best not to give an anesthetic. Turning was accomplished easily and very rapidly, and with but slight pain to the patient; as soon as the feet were in the lower uterine segment, the placenta and membranes were penetrated and the feet brought down, serving as a most effective tampon. To save the child I thought it best to deliver rapidly by forcible traction. The rapid delivery undoubtedly saved the child, but it resulted in an extensive laceration of the cervix. Delivery was, however, accomplished in a very short space of time—in less, I believe, than fifteen minutes.

Before turning it was thought possible to get by the placenta to the right side of the cervix, but when I got inside no margin could be found; hence I had to plunge straight through the placenta, tearing it nearly in two through the center. There was little loss of blood. Mother and child were both comfortable a short time after the delivery. A 1 : 2000 corrosive sublimate intrauterine douche was given, and the patient turned over to the care of the nurse.

On July 22d, about thirty-two hours after delivery, the patient had a violent chill. When I arrived, at 11 P.M., the temperature was 104°, the pulse 120, the respiration 30. Examination revealed congestion of the lower lobes of the right lung. I prescribed ammonium carbonate, grs. iv, to be repeated every two hours; quinine sulphate, grs. iij, every hour for four hours; every four hours afterward brandy, half an ounce in milk or eggnog every three or four hours; hot-water vaginal douche with one-half per cent. creolin in solution repeated four times a day. On the 24th the temperature fell to 102°, the respiration to 24, while the pulse remained at 120. From this time on the symptoms were favorable until two o'clock in the morning of July 26th, when another uterine hemorrhage occurred. To stop the bleeding a hypodermatic injection of ergotin was given, and ice was applied to the abdomen. These measures not affording immediate relief, I introduced a piece of ice as large as a small hen's egg into the uterine cavity. This arrested the bleeding at once. After so much loss of blood it seemed as though it would be impossible for the patient to survive much longer. A liberal use of stimulants and a few hypodermatic injections of atropine brought about reaction and restored the ebbing tide of life.

During the evening before this hemorrhage the patient had been very restless, had tossed about a great deal, and upon repeated requests had finally been permitted to be raised up out of bed. This indiscretion was no doubt the cause of the hemorrhage which occurred a few hours later.

The patient was again put upon quinine, two grains four times a day; ammonium carbonate, four grains every three hours; ergot was given in 10-drop doses for a few days. Digestion seemed to be excellent. From two to three eggs and from a quart to a quart and a half of milk were taken daily. Brandy was used freely with the eggs and milk. Beef-juice, chicken-broth, and meat-soups were given at short intervals. The patient continued to improve, though very pale and feeble. The sputa were excessive and muco-purulent. Within a week of the first evidence of lung-consolidation of the right side there began to be signs of foci of broncho-pneumonia on the left side. As the case progressed very considerable areas of lung-substance became involved in the catarrhal inflammation, and I began to seriously question the possibility of acute tuberculosis. Microscopic examination of the sputa failed, however, to substantiate my fears.

On August 1st, the temperature began to rise, reaching 103° on the following day. At about this time the sputa became extremely offensive, having the unmistakable odor of gangrene of the lungs. Five minims of pure oil of eucalyptus were now added to the ammonium carbonate (four grains) and given in an emulsion every three hours. Eucalyptus and creasote were freely used by atomization. In a few days the fetor became less marked and the quantity expectorated diminished. In the course of three days the sputa again became very abundant and offensive, enormous quantities of decomposed lung-tissue being brought up at short intervals. From the 7th to the 12th of August the fetor of the sputa was so great as to make it almost impossible for an attendant to be in the room during the intervals of severe cough. Free atomization of a solution of thymol proved to be very effective in suppressing the bad odor.

Up to the 7th of August, quinine was given in doses of two grains every four hours. At this time I discontinued the quinine and ordered syrup of hydriodic acid in teaspoonful doses every four hours, giving in addition compound syrup of the hypophosphites with strychnine and quinine four times a day. This treatment was continued during the next three weeks without modification. After August 12th the evidences of gangrene gradually disappeared, and the patient improved very materially in every respect during the succeeding week. During the fourth week after labor, pulse, temperature, and respiration were subject to but slight fluctuations and began to resume the normal. There still remained evidence of bronchitis and broncho-pneumonia. The sputa continued muco-purulent for many weeks, and it was feared that tuberculosis would be the ultimate outcome, but tubercle-bacilli were at no time found, and the patient slowly but surely regained a very fair degree of health, after many months of suffering and trial. The baby is at this time (little over a year after birth) a fat and robust fellow. The mother has for some time attended to her usual household duties and is apparently as well as before her severe siege of sickness. She is at times troubled with a slight cough and is still pale and anemic. Under the left axilla there is an area over three inches in diameter in which there is dulness on percussion and absence of respiratory murmur.

The temperature-record is herewith appended:

		Temperature.	Pulse.	Respiration.
July	22,	104°	120	30
"	23,	103.6°	120	
"	"	104°	120	24
"	24,	102°	120	24
"	"	103°	120	
"	25,	101.4°	116	26
"	"	102.6°	120	
"	26,	97.6°	104	16
"	"	101.6°	120	
"	27,	100.6°	106	20
"	"	101°	112	
"	28,	100.4°	106	21

		Temperature.	Pulse.	Respiration.
July	28,	101.6°	108	
"	29,	100.1°	104	20
"	"	101.6°	108	
"	30,	99.6°	96	22
"	"	101°	110	
"	31,	99.6°	100	19
"	"	100.6°		
August	1,	100°	94	24
"	"	100.6°	100	
"	2,	101.6°	104	36
"	"	103°	114	
"	3,	101.4°	116	34
"	"	101°	98	
"	4,	101°	100	34
"	"	102°	112	
"	5,	100°	100	30
"	"	101°		
"	6,	100.6°	100	30
"	"	101.8°		
"	7,	100°	96	30
"	"	100.8°	72	
"	8,	99.6°	70	28
"	"	100.8°		
"	9,	99.6°	64	24
"	"	100°		
"	10,	100.6°	70	24
"	"	102°	104	
"	11,	100°	100	20
"	"	99.6°		
"	12,	100°	96	20
"	"	101.6°		
"	13,	99°	84	18
"	"	98.6°	70	
"	14,	97.6°	74	
"	"	98.8°	88	
"	15,	98.4°	80	
"	"	98.6°	90	

FOUR CASES OF APPENDICITIS PRESENTING SOME POINTS OF INTEREST.

BY H. A. McCALLUM, M.D.,
PROFESSOR OF PHYSIOLOGY AND LECTURER ON CLINICAL MEDICINE, WESTERN UNIVERSITY, LONDON, CANADA.

CASE I. ABSCESS OF THE APPENDIX MISTAKEN FOR PERI-NEPHRITIS.

I BEGAN attending H. J., thirty-one years old, on April 13, 1888, for appendicitis, and as surgical interference was then almost unknown, he worried along for two weeks with the opium-treatment in spite of a large swelling in the right inguinal region. At the end of this time, on account of bulging in the lumbar region over the situation of the right kidney, loss of sensation on the anterior surface of the right thigh, flexion of the thigh on the pelvis, and a history of injury in this region some six weeks previously, I regarded the attack of appendicitis as being complicated with peri-nephritis—in spite of the absence of blood and pus in the urine. I called a surgeon, but he urged delay, and not till the end of a week, when my patient was fast approaching a moribund state, was I able to gain assent to an operation. Dr. C. S. Moore administered chloroform, while Dr. Wishart attempted to confirm the diagnosis of abscess by the use of an aspirating-needle, but failed.

Despite this I urged that a free incision be made down to the kidney, which was attended with no better result. A broad, grooved director was then plunged downward through this incision toward the region of the appendix, and its withdrawal was followed by a gush of gas, fetid pus, and fecal matter.

The sinus discharged intermittently for two years, but the patient has had continuously good health since June, 1888.

CASE II. A CASE OF APPENDICITIS APPARENTLY HEREDITARY TERMINATING BY A DISCHARGE OF PUS PER RECTUM.

I was called on July 14, 1892, to attend R. W., nine years old, and found him suffering from typical symptoms of appendicitis.

His father, thirty-five years old, has in the last four years had seven attacks of the same kind, in one of which I was the attending physician.

An uncle of the father, fifty-six years old, has had four attacks of the disease in the last five years, and as a sequel of one of these, two years ago a large swelling remained in the right iliac fossa for several weeks. On the third day of the child's attack I called Dr. F. R. Eccles in consultation for the purpose of operating, but on account of the favorable outcome in the case of the father and grand-uncle the parents objected to surgical interference. By July 30th the swelling in the right inguinal region presented well-marked fluctuation, and by inserting a hypodermatic needle per rectum into the bulging, we were able to draw off a syringeful of foul-smelling pus. With the odor of this it was attempted to convince the parents of the necessity of immediate operation. Consent having been obtained, on July 31st the boy was removed to the General Hospital, but before leaving home, at stool he passed a pint or more of the characteristic pus. On the next day, under an anesthetic, careful rectal examination failed to show the discharging sinus, and as all evidence of the swelling had disappeared, nothing was done. On November 15th he had apparently recovered from his attack, and only a few painless nodules remain to mark the wall of the abscess-cavity.

CASE III. THE DECEPTION OCCASIONED BY THE ACCUMULATION OF GAS IN THE ABSCESS-CAVITY IN PERFORATING APPENDICITIS.

In company with Dr. Eccles, I attended R. C. S., a medical student, who was confined to bed October 11, 1892, with appendicitis. The temperature was 102°, the pulse 95. On October 14th the pulse was 92, the temperature 101.8°; McBurney's tender point was present, and there was considerable tympanites, except where a diffused area of dulness existed over the region of the appendix. On October 15th we consulted with Drs. Meek and Moorehouse on the advisability of operating, and it was decided to wait. On October 16th the temperature was 100.4°; the dulness in the right inguinal region had diminished, but the pulse and the tympanites were unaltered. The disappearance of dulness in the right groin was regarded as a favorable sign. On October 17th pain and tympanites increased, and were imperfectly relieved by enemata and large doses of opium. Vomiting of fluid of a suspiciously fecal odor set in. The catheter, which had been used three times daily from

the beginning of the attack, was now required more frequently.

On October 18th the pulse was 88, the temperature 99.4°; the hands were cold and clammy; the tympanites was increased; and very little flatus had been passed in the preceding thirty-six hours. On careful percussion, what appeared to be the wall of the deep-seated area of dulness was outlined. It was decided to operate during the afternoon. A curved incision was made over this area, entering a cavity distended with gas and containing about eight ounces of pus. Small particles of fecal matter were present in the escaping pus, and the perforated appendix was left undisturbed. Immediately after opening the cavity flatus began escaping in large quantities per rectum.

After thorough irrigation, iodoform-gauze and a rubber drainage-tube were inserted.

On November 5th a concretion about half the size of a man's thumb was dicharged through the wound. On November 15th the patient was doing well, but the sinus was not yet closed.

The presence of gas in the abscess-cavity and the deception to which it may give rise is not properly emphasized by writers on appendicitis. I can only find one author who points out how it may lead one into a false belief of improvement.

CASE IV. A CASE IN WHICH THE APPENDIX WAS FOUND ON THE UPPER SURFACE OF THE LIVER, WITH EVIDENCE OF AN OLD APPENDICITIS AND OF THE DISCHARGE OF PUS THROUGH THE EIGHTH INTERCOSTAL SPACE AND BY THE LUNG.

Miss M. D., thirty years old, was seen in the practice of Dr. Eccles of this city. On October 28, 1892, assisted by Dr. Meek, hysterectomy was performed for an edematous fibroid of the uterus.

On November 1st the patient died with symptoms of intestinal obstruction. Seven hours after death, in the presence of Drs. Eccles, Meek, Balfour, and Gowan, I made the post-mortem examination. In the ileum, beginning ten inches from its cecal junction and extending along the bowel to within four inches of it was a fibrous stricture, which, aided by a twist in the long axis of the bowel, made a complete obstruction.

A less well marked stricture, seven inches in length, existed in the descending colon. Both resulted from contraction of old inflammatory bands in the peritoneal coat. The appendix was found passing upward in front of the ascending colon, over the anterior margin of the liver one inch to the right of the gall-bladder, where it disappeared in a mass of old inflammatory tissue. Up to this point of the appendix gas could be readily forced. Adhesions bound the liver to the abdominal wall and diaphragm so completely that great difficulty was experienced in separating them. These were carefully and sufficiently broken down to obtain the appendix entire, and it was found much thickened and its lumen obliterated. The end of the appendix extended over the upper hepatic surface to within two and a half inches of its posterior border. Glisson's capsule over the entire right lobe was very much thickened—in some places to the extent of almost half an inch. In the skin over the region of the imbedded appendix, in the eighth intercostal space, was an old retracted scar, one and a half inches long. The previous history, obtained from Dr. W. S. McDonald, house-surgeon, was that "sixteen years ago patient had pneumonia (at the right base), combined with peritonitis. She was ill for sixteen months continuously, and during the early part of the illness an abscess formed and discharged in the situation of the present scar. This sinus after a time healed, and there followed a relapse of pneumonia and peritonitis. After expectoration of large quantities of matter, identical in odor with that discharged from the healed sinus, the patient slowly grew better. The attending practitioner thought the matter came from an abscess in the lung."

This was doubtless a case of appendicitis, discharging first in the situation of the scar, and on its closure, by way of the lung. Treves,[1] speaking of the mobility of the appendix and its proximity to the liver, says: "It will be obvious that if typhlitis or appendicitis were to arise in parts so placed, a considerable difficulty in diagnosis would arise. I am not aware that any such case has been placed on record."

THREE CASES FROM PRIVATE PRACTICE.

BY W. T. SHARPLESS, M.D.,
OF WEST CHESTER, PA.

THE DIFFICULTY OF LOCATING BRAIN-LESIONS, AS ILLUSTRATED BY DEPRESSED FRACTURE OF THE FRONTAL BONE.

ON October 6, 1891, I was called to see a boy, eight years old, who had been kicked by a horse, receiving a compound depressed fracture of the frontal bone. There was a triangular tear of the scalp over the right eye. On raising the flap, the depression was found to extend from a point half an inch above the external angular process of the frontal bone, obliquely upward and toward the median line, a distance of one and a half inches. It was half an inch in width, and about one-eighth of an inch in depth. There was very little splintering of the adjacent bone. The boy was in good condition, and had not been unconscious.

On consultation with Dr. Jacob Price, it was decided to trephine and raise the depressed portion. Before we operated, the patient had two convulsive seizures, the muscular movements being strictly confined to the left side of the face and neck and left arm. With a one-inch trephine, a piece of bone was removed above and overlapping the depression. The dura had not been injured. The frontal sinuses not being developed in a child of eight years, we had no difficulty from that source. The injury to the internal table was much more extensive than that to the external table. With a lever the depressed portion was elevated, and the loose fragments removed. The tissues of the scalp were then replaced and the wound closed. The boy had no more convulsions, and made a satisfactory recovery.

I have reported this case because it seemed to me noteworthy that a wound in the frontal region should produce the motor symptoms described. If we had been operating for these symptoms alone, and had not had the external wound to guide us, we would have trephined over the motor centers of the parts convulsed.

[1] Wood's Monographs, vol. xi, No. 2, p. 515.

which are fully two and a half inches from the point of injury. The possibility of having the irritation transmitted for a considerable distance may explain some failures in brain-surgery, and lends an additional element of doubt to the exact location of brain-lesions.

ANGINA PECTORIS IN A FEMALE, WITH OBLITERATIVE ENDARTERITIS OF THE ANTERIOR CORONARY ARTERY, AND AN AREA OF ANEMIC NECROSIS IN THE HEART-WALL.

About January 1, 1892, I was called to see a woman, sixty-two years old, who was subject to spells of severe pain in the precordia, radiating to the left shoulder and arm. The attacks occurred at variable intervals of time, not oftener than once a month at first, and were generally induced by exertion. The first attacks lasted but a few seconds. They gradually became more frequent and more prolonged, and occurred at times when there was no apparent cause. Between the attacks the woman had dyspnea on exertion and edema of the lower extremities. The heart-sounds were feeble, rapid, and irregular. The first sound was accompanied by a soft blowing murmur, heard best at the apex. The peripheral arteries were not rigid.

The heart-tonics, digitalis, strophanthus, and caffeine, increased the number and intensity of the attacks, as well as the general distress. The woman could tell with great accuracy that the "medicine made her worse," whenever any of those named was used.

Amyl nitrite had very little effect on the attack, and that effect was soon lost. Morphine and atropine alone helped her. They relieved the attacks, and prevented their recurrence. The woman's general condition gradually became worse, although the original attacks seldom occurred during the latter part of her illness, as she was kept constantly under the influence of morphine. She died suddenly August 9, 1892.

At the autopsy the heart was found dilated and flabby. The mitral ring admitted four fingers. There was no thickening or retraction of the valves and no calcareous plates about the origin of the aorta. The anterior coronary artery was occluded, and in an area supplied by it, in the wall of the left ventricle near the apex, the heart-muscle was broken down, and between the visceral layer of the pericardium and the endocardium there was a collection of necrotic tissue. The endocardium was perforated, and some necrotic material was in the left ventricle.

I have reported this case because anemic necrosis of the heart is not a very common condition, and because the symptoms during life, as well as the post-mortem conditions, render the diagnosis of angina pectoris allowable, although Osler says that the disease occurs "almost exclusively in men."

A CASE IN WHICH A MAN SWALLOWED A PLATE FOR ARTIFICIAL TEETH.

On October 9, 1892, a patient came to my office, who, while eating his dinner, had swallowed a plate for artificial teeth. The plate had originally carried two incisor teeth, but the teeth having come out he had worn the plate for several years because he had become accustomed to it. He complained of severe spasmodic pain in the region of the cardiac orifice of the stomach. A soft stomach-tube was passed and was arrested at about this situation, not entering the stomach. As the plate was too low down to be grasped by instruments, I gave him apomorphine, gr. ⅙, hypodermatically, with mustard-water by the mouth (which he swallowed without much difficulty); but copious emesis failed to dislodge the plate. Then, with a stiff esophageal bougie, I pushed the plate into the stomach. The pain was almost instantly relieved.

The "potato treatment" was adopted, and in forty-two hours from the time of swallowing the plate it was passed per rectum. The sharp edges slightly lacerated the anal sphincter. Otherwise no harm was done.

The dimensions of the plate are 1½ by 1¼ by ⅝ inches, as shown in full-size cut.

CONVULSIONS AND MALARIA.

BY FREDERICK HILL STANBRO, M.D.,
OF SPRINGVILLE, N. Y.

THE case here reported is of interest in two respects: firstly, as to the cause of the attacks, which was either mental disturbance, spinal injury, or the excitement of the nervous system caused by cauterization and the resultant pain; secondly, on account of the cessation of the attacks after the use of quinine sulphate.

H. H., a young American laborer, ten days after illicit sexual intercourse noticed a sore on the glans penis and consulted me five days later. I found three ulcers, which I considered to be chancroids. Sensibility having been lessened by an application of pure carbolic acid, I cauterized the sores with fuming nitric acid and covered them with dry iodoform dressing.

I saw the man every two days for a week. On the eleventh day, on removing the dressing, profuse arterial hemorrhage took place from the base of one of the ulcers, which was controlled only by packing with ferric sulphate. The pain was so severe during the night that sleep was greatly disturbed.

On the same day, while engaged in lifting a huge stone, the man had slipped and fallen, striking his spine upon a large rock; severe pain continued for some time after. A day later he was feeling well and came to my office to have the ulcers again cauterized and dressed as usual. On going home he ate a large dinner, took a full bath, and at about 5 P.M. fell unconscious, and had a series of convulsions of the hystero-epileptic variety, according to the classification of Frederick Jolly in his article in Ziemssen's *Cyclopedia*. The man became unconscious, throwing his body recklessly in all directions, with his eyes closed, the pupils dilated, the breathing stertorous—the strength of two or three men being

required to control the movements. There was no opisthotonus and no biting of the tongue, but there was frothing at the mouth. On pressure over the spine two or three tender vertebræ were found at the place of injury of the previous day.

After ten or fifteen minutes the man would curl his body, and the convulsions would cease for about ten minutes, the breathing being stertorous and the sopor profound.

The attendants stated that he had thirty separate convulsions that night. Chloroform was inhaled and potassium bromide was given in doses of thirty grains, and the convulsions stopped before morning. On the next day the man ate well; his bowels were moved; and he felt well until about 7 P.M., when the convulsions recurred and lasted about three hours. The same treatment was used as had been employed. The man had a good night and felt well on the next day, except for muscular lameness. Two hours later than on the previous evening the convulsions again came on, but ceased after the use of increased doses of potassium bromide.

The next two days were but repetitions of the preceding days, except that the attacks came on each night two hours later than on the preceding night.

The spinal tenderness disappeared on the second day of the attacks. At no time had the penis been swollen, tender, or painful.

The periodicity of the attacks exciting a suspicion of a malarial cause or complication, I administered fifteen grains of quinine sulphate at night. Thereafter there were no further convulsions or nervous symptoms. The quinine was continued for four days in large doses and then withdrawn.

The man has greatly improved in appearance, strength, and general health; his appetite is good and sleep is normal.

The ulcers have been cauterized two or three times since, this treatment, for obvious reasons, having been temporarily omitted; but no untoward effects have been observed. It is now six weeks since the exhibition of the quinine and the occurrence of the convulsions.

Recovery was only retarded by the development of a bubo as large as a hen's egg in the right groin, which threatened suppuration. Calcium sulphide, gr. $\frac{1}{10}$, was given every hour, and the swelling and soreness completely disappeared within three days.

I can find in the books and periodicals at my command no case similar to that reported. The periodicity of the attacks and their cessation after saturating the system with quinine lead me to the belief that the attacks were of malarial origin, precipitated, doubtless, by either the cauterization or the spinal injury, or a combination of the two.

CENTRAL PNEUMONIA WITH COMPLICATIONS.[1]

BY JAMES ELY TALLEY, M.D.,
RESIDENT PHYSICIAN, CHILDREN'S HOSPITAL, PHILADELPHIA.

ON September 5th, W. M., two years old, was brought to the hospital in the ambulance. For several days there had been cough and diarrhea. The child had convulsions, one after another, at intervals of from five to ten minutes; its eyes rolled, its mouth twitched, its fingers clutched, and there was alternate flexing and kicking out of the legs and thighs. The temperature was 107.4°, the respiration 100, the pulse imperceptible, and the heart's action almost uncountable.

The child was immediately stripped and sponged with cold water; a single grain of antipyrin was given, as the drug had been observed to act well a few weeks previously in a case of insolation complicating fracture of the femur in a child of three months.

The temperature gradually fell, and in forty-five minutes having reached 102.4°, the sponging was stopped, and ten grains of potassium bromide were administered by enema, as the convulsions still persisted. The temperature then gradually rose, and sponging failed to lower it. In three hours it had crept up to 105°, when a second grain of antipyrin was given, which, coupled with sponging, very gradually reduced the temperature to 102°. The convulsions still continued, but the intervals grew longer and the severity varied directly with the rise in the temperature. Fortunately, vomiting was not a feature of the case, so that five grains of potassium bromide were given by the mouth every four hours, and in twenty-four hours the convulsions had entirely ceased.

During the first few hours that the child was in the house there were but two thin yellow stools, but later in the day the typical green stools of entero-colitis, containing curds of undigested milk, began to follow each other in quick succession. An enema of starch-water, containing tincture of opium, gtt. iij, was given, and to get rid of the offending substances, castor oil, fl ʒi. Later the child was given a mixture containing bismuth subnitrate and bismuth salicylate, with the result that on the second day after admission there was but one stool; but on omitting the bismuth mixture on the third day the diarrhea recurred.

Several hours after admission a new symptom became prominent in the form of marked stridulous breathing, with intervals of coughing. The stridor became so marked that laryngeal obstruction seemed not unlikely, and one of the visiting physicians was asked to see the case. He doubted the existence of any laryngeal obstruction, and was inclined to look upon the trouble as centric; still he advised asking one of the surgeons to see the case, inasmuch as operative interference during the night might become a necessity. One of the visiting surgeons saw the case, but in view of the rapidity of the respirations (then 60) and the absence of any marked recession of the chest, came to the conclusion that the labored and stridulous respiration was probably due to an effusion close to the respiratory center, and not to laryngeal obstruction. That some such explanation must have been the correct one seemed proved by the fact that by the following morning the respiration, though still rapid, was no longer stridulous. The centric-pressure theory was later partially supported by the development of stiffness and retraction of the neck; by a vague history of ill-treatment and a possible blow upon the head before coming to the hospital.

From the beginning the high temperature, cough, convulsions, rapid respiration, evidence of pain, and facies of the patient had suggested the probability of pneumonia to all who came in contact with the case. The fact that during the second, third, and fourth days following admission, all of the other symptoms having ameliorated, the temperature still kept high, thrice reach-

[1] Service of Dr. Arthur V. Meigs.

ing 104°, with a tendency to remain at 103°, and the morning remissions reaching only 100.6°, served to emphasize this probability. Although repeated examinations had been made from the beginning, it was only on the fifth day after admission that circumscribed bronchial breathing, mucous râles, and ill-marked impairment of the percussion-resonance on the left and posteriorly were demonstrable. On the following day the crisis occurred, the temperature falling two degrees suddenly, then by rapid lysis to normal, and the child entered upon an uninterruped convalescence and recovery.

MEDICAL PROGRESS.

Conservative Cæsarean Section with Oöphorectomy for Osteomalacia.—SOLOWIJ (*Centralbl. f. Gynäkol.*, 1892, No. 32, p. 745) has reported the case of a woman, twenty-six years old, who had borne two small children, and in whom manifestations of osteomalacia appeared. She became again pregnant, with increase in the intensity of the symptoms. She was four and a half feet tall. The distance between the iliac spines was 21 cm. (8.1 in.); that between the crests of the ilia, 26 cm. (10 in.). The external conjugate was 18 cm. (6.9 in.); the diagonal conjugate, 11 cm. (4.2 in.); the true conjugate, 9 cm. (3.5 in.) The transverse diameter of the pelvic outlet was 5½ cm. (2.1 in.); the circumference 78 cm. (30 in.) To safely accomplish delivery and as a means of curing the osteomalacia, it was determined to perform Cæsarean section and remove the ovaries at the termination of pregnancy. Four and a half hours after the pains began, the cervix was obliterated, the os was dilated sufficiently to permit the entrance of four fingers, the fontanel was palpable, and the waters had ruptured. An hour later the section was made. The placenta was attached to the anterior wall of the uterus and had to be cut through. The child weighed five pounds and a quarter and appeared normal. The cord was tied and the placenta and membranes removed. The uterus contracted firmly after the incisions in the uterus were closed. The ovaries, which were atrophic, were ligated and removed. The abdominal wound was then closed. The woman recovered without noteworthy complication. The child died of gastro-intestinal catarrh induced by deficient nutrition.

Prolapse of the Female Urethra.—GRAEFE (*Centralbl. f. Gynäkologie*, 1892, No. 39, p. 767) has reported the case of a girl, eight years old, brought to him with a small tumor in the genital region, that had existed for six months, and from time to time displayed a tendency to inflammatory manifestations. On inspection, a sensitive, injected, polypoid tumor, as large as an almond, was found at the orifice of the urethra. To subdue the acute inflammatory symptoms a lotion of boric acid and a 2 per cent. ichthyol-ointment were prescribed. At the end of two weeks the condition had much improved, and it was apparent that the trouble was a prolapse of the urethra. The removal of the condition was proposed, but at first declined; as, however, the inflammatory symptoms returned and difficulty in micturition appeared, operative interference was solicited. After the patient was anesthetized a metallic sound was introduced into the bladder and the mucous membrane of the urethra secured against retraction by means of two sutures. Then the upper and lower halves of the prolapse were successively removed and the divided mucous membrane accurately approximated. To anticipate the possible occurrence of urinary retention, a soft catheter was permitted to remain in the bladder for three days. The sutures were removed on the sixth day and the patient was dismissed on the tenth day.

Pulmonary Infarction.—GRAWITZ (*Journal of Pathology and Bacteriology*, i, 1, p. 95) maintains that the condition of infarction, as seen in the lung, is not dependent upon embolism of a pulmonary artery. He found that the process begins as a chronic bronchitis, consecutively to which the bronchial walls become converted into soft, vascular granulation-tissue, which furnishes a purulent secretion, and this in turn sets up coughing. As a result cyanosis is produced and the newly-formed bloodvessels in the peri-bronchial, pleural, or interlobular connective tissue rupture and form at first small infarctions, which gradually become larger as the hemorrhages are repeated. Such hemorrhages are rarely caused by uncomplicated broncho-pneumonia, but they commonly result from weakening of the heart-muscle. In cases in which the pulmonary artery is occluded, the occlusion is thought to be secondary. Infarction is most common in the lower parts of the lungs, because bronchitis is most fully developed in these situations.

Examination for Tubercle-bacilli.—VAN KETEL (*Archiv für Hygiene*, Bd. xv, p. 109; *Centralbl. f. Bakt. u. Parasitenk.*, xii, 19, p. 689) proposes a new method to facilitate the search for tubercle-bacilli in fluids. Into a wide-mouthed flask, having a capacity of about three ounces, are introduced about three drams of the fluid to be examined, a dram and a half of liquefied carbolic acid, and, if the fluid be thick, about three drams of water. The mixture is well shaken for a minute or two. The vessel is then filled with water and again actively shaken. Its contents are at once poured into a conical glass and permitted to stand for from twelve to twenty-four hours, at the expiration of which time a portion of the sediment is removed with a pipette and placed upon a cover-slip and dried. The cover-slip is washed in ether or chloroform and then in alcohol, or at once in compound spirit of ether. The preparation may now be stained in the usual way with carbol-fuchsin or other stain.

Sudden Death in the Puerperium.—VINAY (*Lyon Médical*, 1892, No. 45, p. 325) has reported the case of a woman, twenty-nine years old, who had had two children at term and three miscarriages, and who was pregnant for the sixth time. The labor transpired without complication, but there was considerable post-partum hemorrhage, necessitating manual removal of the placenta. On the fourth day after labor there was a slight rise of temperature, soon followed by offensive odor of the lochia, pain in the hypogastrium, chilliness, and vomiting. The symptoms subsided upon the employment of antiseptic uterine irrigation. Anemia and weakness, however, persisted. At the close of the third week, the woman, contrary to advice, attempted to arise from bed. She

was overcome by weakness and died in a short time. At the post-mortem examination a considerable mass of firm clot was found in the right ventricle, and the right division of the pulmonary artery contained a clot extending into a branch of the fourth degree.

Gluteal Abscess from the Rupture of a Parametric Exudate through the Great Sciatic Foramen.—WERNER (*Memorabilien*, xxxvi, 9, p. 515) has reported the case of a woman, twenty-six years old, who, on the day after delivery of her third child, was seized with a chill. A day afterward there was a sense of pressure about the left parametrium; the pulse was accelerated, and the temperature was elevated; while the lochia became offensive. After another day the sense of pressure extended, and some dulness on percussion became evident in the left hypogastrium. Several days later intense pain was perceived at the posterior aspect of the left hip-joint. To the pain swelling was soon added. With increase in the swelling the signs referable to the abdomen moderated. Finally, fluctuation could be detected. Incision evacuated a moderate quantity of pus and broken-down tissue. Drainage was provided for, and after a time the cavity closed. The case was further complicated by the development of a wandering erysipelas.

The Uro-genital Blennorrhea of Little Girls.—CAHENBRACH (*Jahrbuch f. Heilkunde und Physische Erziehung*, Bd. xxxiv, Heft 4, p. 369) has reported twenty-six cases of uro-genital blennorrhea, from a study of which he formulates the following conclusions: The disease is in most cases, if attended with profuse secretion, of gonorrheal origin. The infection is usually acquired indirectly, and attacks primarily the vulva and the urethra. The vagina may become involved subsequently. Involvement of the cervix and of the uterus is extremely rare. At times articular complications arise. Untreated, the disease lasts on an average about three months; the prognosis is more favorable than in the case of adults. The treatment should be simple and not too energetic. Rest in bed is a most important factor. As a prophylactic measure children should not be permitted to sleep with or to use the same toilet articles as persons having gonorrhea.

The Protective Property of the Blood of Cholera-Convalescents.—LAZARUS (*Berliner klin. Wochenschr.*, 1892, Nos. 43 and 44) has demonstrated that guinea-pigs previously treated with the blood-serum of convalescents from cholera resist infection when subsequently inoculated with otherwise lethal quantities of cholera-bacilli. The protective influence is, however, much less if the treatment with the blood-serum is employed after the animals have already been inoculated. The earlier after inoculation that the protective treatment is begun, the more favorable the result. When constitutional manifestations of infection had appeared, the injections of blood-serum appeared futile.

Acute Enlargement of the Thyroid Gland.—LANDAU (*Deutsche medicin. Wochenschr.*, 1892, No. 42, p. 944) has reported the case of a school-teacher, who, two days after having descended from a mountain 7700 feet above the level of the sea, and the soil of which was largely constituted of calcium and magnesium salts, noticed that a goiter that he had had for a number of years had undergone decided increase in size. Iodine was at first applied topically, but, failing, it was replaced by the application of a weak faradic current. After three sittings the gland had subsided to its customary size.

THERAPEUTIC NOTES.

For Herpes Zoster.—

℞.—Acid. boric. . . . . ʒss.
Zinci oxid. } . . . . āā ʒj.
Pulv. amyli }
Vaselin. pur. . . . . ʒiij.
Lannolin. . . . . ʒivss.—M.
Ft. unguent.

S.—Apply topically after the vesicles have been punctured with a sterilized needle and gently irrigated with borated water. Then dust the surface with powdered starch and apply a layer of cotton. If the pain is severe, cocaine or morphine may be included in the ointment.

BROCA, *L'Union Méd.; Rev. Int. de Bibl., etc.*

Iodoform in the Treatment of Cholera.—NEISSER (*Deutsche med. Wochenschrift*, 1892, No. 40, p. 905) calls attention to the fact that while iodoform is capable only of retarding the development in culture of most microörganisms, it exercises a peculiarly fatal influence upon cholera-bacilli. Based upon this observation he makes the recommendation that iodoform be tried in cases of cholera not foudroyant in character, or during the prodromal stage. The usual dose of fifteen grains a day can be safely given in pill or capsule, or other suitable form.

Intoxication with Acetanilide.—The case is reported of a young man, twenty-four years old, who, after taking three drams of acetanilide with suicidal intent, immediately became somnolent and cyanosed. Subcutaneous injections of ether and lavage were practised, and at the end of several hours the cyanosis gradually disappeared, and the drug was eliminated in the urine. The intoxication was characterized by hypothermia.—*Wiener. klin. Wochenschr.*, No. 28, 1892; *Rev. de Thér.*, No. 22, 1892.

For the Urticaria of Children.—

℞.—Chloral hydrat. }
Pulv. camphoræ } . āā ʒj.
Pulv. gummi arabic. }
Triturate to liquefaction and add
Cerat. simplicis . . . . ʒj.—M.
S.—Apply topically.

L'Union Méd., No. 130.

Application in Diphtheria.—

℞.—Acid. carbolic. crystal. }
Acid. citric. crystal. } . . gr. xv.
Tinct. iodi . . . . . ♏xv.
Cognac . . . . . f ʒj.—M.
S.—Apply topically every two or three hours.

OZEGOWSKI, *Rev. de Laryng., etc.*, No. 22.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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Subscription Price, including Postage in North America.

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SATURDAY, DECEMBER 17, 1892.

POLITICS AND THE PUBLIC HEALTH.

JUST at present the politicians are taking an unusual amount of interest in the subject of Public Health, more especially in its relations to immigration and to the probability of the importation of cholera next year. The Senate Committee on Immigration has been collecting the opinions of physicians on these subjects, and several bills relating to National quarantine, to a National health-organization, and to restriction of immigration, will no doubt be introduced soon after the meeting of Congress. The interests involved in the possible action of the legislative and executive authorities of the country upon these points are of great importance and far-reaching, and the questions arising are difficult and complicated. Many persons are of the opinion that the time has come when it is desirable to check immigration to this country, to prevent paupers and unskilled laborers from coming here, on the ground that we have more than enough of them already; and these persons use the danger of importation of cholera merely as a special argument in favor of the action that they advise. Among them are a number of practical politicians who believe that such action will tend to secure what is known as the labor vote.

On the other hand, there are many persons who urge that the commercial interests of this country are opposed to such restriction; that it will produce a comparative stagnation in all branches connected with foreign trade and seriously diminish the revenue at a time when the country can least afford to submit to such a diminution, and that whatever precautions are necessary to keep out cholera should be taken in such a manner as to obtain the desired security with the least possible interruption to travel and traffic. Charges and counter-charges as to interested motives and deep and mysterious plots on the part of opponents are being bandied about. One party asserts that the steamship agents are trying to have the Supervising Surgeon-General of the Marine-Hospital Service removed, because he, as a zealous and efficient officer, has properly enforced the President's proclamation, and has thereby injured their business; while another party claims that the Surgeon-General is scheming to obtain more power and patronage, and is trying to get up a cholera-scare to that end. There is probably little truth in either of these statements, and the great mass of the public, which is deeply interested in having a wise decision and right action for the protection of its health, must endeavor to estimate fairly how much the statements of either side are colored by self-interest.

To us it would seem as if the discussion as to what is to be done to protect the public health is for the most part carried on from entirely too narrow a point of view. Special legislation to prevent the importation of cholera or of yellow fever, and the selection of officials to enforce such legislation, are not likely to give us a satisfactory Public-Health service, if nothing more is provided. So soon as the immediate danger passes away, commercial interests again become overpowering, the strict rules are no longer enforced, the demands for funds are no longer promptly met, and the whole business of quarantine becomes more or less of a solemn farce until the next scare turns up.

The United States is probably at this time in greater danger of an epidemic of yellow fever than it is of cholera, yet this is not alluded to in recent discussions; and it has lost more lives from typhoid fever within the last year than it lost from the last general epidemics of cholera and of yellow fever together; but no Senators are collecting evidence on that point, nor is it a matter of interest to politicians.

We believe that the National Government should

have supervision of maritime quarantine, and should administer it with due regard to the commercial interests of the country; but this does not appear to us to be its sole duty as regards the public health, and it is to be hoped that Congressional legislation on the subject will be placed on a much broader basis than that of preventing the importation of cholera or the keeping out of steerage passengers.

STICK TO THE POINT!

THE *Practitioners' Monthly* once more rallies to the defence of the nostrum, with an attempt, of course, to obscure the real issue by talking about something else. We have yet to find the man or the journal that, in upholding nostrums, is bold enough to meet the issue squarely, without evasion, concealment, or personal abuse. THE MEDICAL NEWS fully defined its position in an editorial article entitled "The Ethics of Proprietary Preparations," March 26, 1892. We then said that to render a preparation legitimate, so that it may be used by self-respecting physicians, one or both of the following conditions must be fufilled:

1. The full process of manufacture is of public record.

2. The true and complete composition of the finished product is made known in definite terms.

We further said that while we did not approve of patents, secret processes, or any other monopolistic device applied to medicinal articles, yet we would continue to use any definite chemical compound (*e. g.*, quinine) or galenical preparation (*e. g.*, fluid extract of ergot), or a combination in known quantities of known chemical or galenical preparations (*e. g.*, BLAUD'S pill), even if made by patented or secret processes, because (*a*) the product is a known substance or definite combination of known substances, and (*b*) there are known means for testing these substances qualitatively and quantitatively.

On the other hand, there may be preparations of which the exact final composition cannot be given because of unknown reactions taking place during mixture. In such event, the whole process or working formula should be public, so that everyone may be at liberty to judge for himself as to the efficacy or availability of a preparation thus made.

If, however, someone should put up quinine, or a mixture of quinine and other things, and market it as a secret preparation under the name, we will say, of "*anti-malaria*," it could not be used by any self-respecting physician, for he would not know either the nature or the strength of the active drug. For all he knew to the contrary it might be highly poisonous. The only object the manufacturer of such a nostrum could have would be to get a dollar for (say) ten cents' worth of quinine by pretending that "*anti-malaria*" was something other than quinine; and the only object of those who keep secret the composition of "*fraudine*," etc.—as was so naïvely admitted by the *Practitioners' Monthly* in the editorial previously cited by us—is to get a dollar for (say) ten cents' worth of a mixture of acetanilide, soda, and morphine (or whatever else the nostrum may be made of) by pretending—let us say—that it is "a new coal-tar derivative." We believe that in case of death occurring after the administration of any preparation of this kind the practitioner prescribing it could not only be held liable for damages in a civil suit, but likewise criminally responsible; and we have no doubt that those members of the profession interested in purifying medicine from the stain of the nostrum traffic—that is to say, the great body of physicians—would be glad to see a prosecution instituted to determine this point.

But, to return to the misleading contention of our cotemporary, it is so well known that except for the efforts of the subsidized press to obscure the facts there should be no necessity to repeat that there is a great distinction between a patented article or process and a secret article or process. While a patented article cannot be made or a patented process be used by any except the owner of the patent or those licensed by him, yet in order to obtain the sanction of the law for such exclusive control, the thing patented must be accurately described. It, therefore, becomes of public record. The reason why others do not make such patented articles is not because the process is not public, but that the law prevents. While we do not approve of the taking of patents for medicinal preparations or for processes of manufacture of medicinal preparations, we cannot refuse to use the patented articles or the products of patented processes, if these should be beneficial; because, to repeat once more, patenting involves full publicity. Nostrums are not patented, but secret; and this secrecy is not confined to the process of manufacture, but extends to the finished product as well. We are thus left in ignorance of its nature and powers. What we attack in the nostrum is its secrecy, and that alone.

The reason why "fraudine" and its like are not patented is twofold.

First, the law requires as a prerequisite to the issuance of a patent, proof of novelty and of usefulness. "Fraudine" can prove neither the one nor the other.

Secondly, patenting involves publicity, and frauds of all kinds hate publicity, for publicity to them means death.

Such then is our position, and the position not only of representative bodies of medical men like the Missouri State Medical Society and the American Medical Association but likewise of representatives of the best sentiment in pharmacy, like the Philadelphia College of Pharmacy and its Alumni Association, the American Pharmaceutical Association, and the Committee on Revision of the United States Pharmacopeia, in which latter committee the profession of pharmacy is well represented. The attempt to divert attention from the secrecy of the nostrum by talking about "pharmaceutical specialties" on the one hand, or, about the exclusive right of manufacture possessed by the proprietors of patented articles or processes, on the other hand, is thus shown to be as specious as the traffic in nostrums is pernicious.

THE TRANSMISSION OF CHOLERA.

THERE is no occasion for alarm in connection with the cholera outlook for the coming year. There is, however, the greatest need for circumspection and the enforcement of proper precautions to prevent the entrance and, if it spread, the spread of the disease. This means the adoption of measures to prevent and restrict the dissemination of the germ-cause—a line of procedure that in the recent epidemic was so successful in confining the outbreak to the city of Hamburg.

It is thoroughly well known that the most common mode of transmission of cholera is through the water-supply, including of course milk and such other articles of food into the preparation or cultivation of which water enters. It is also well recognized that the individual and fomites form a most convenient agency of transference of the infection. It is, however, perhaps not sufficiently well known that ordinary articles of food may act as the carriers of the disease. In illustration of this fact KOSSEL (*Deutsche medicin. Wochenschr.*, No. 45, 1892, p. 1024) records a most interesting observation. A woman, living in a German town, went to Hamburg on a short visit at a time when cholera was prevalent. On her return she was rigidly quarantined and kept under careful observation. Her baggage was disinfected by steam. The woman had brought with her some bread and butter, and possibly some other articles of food, part of which she had herself eaten on the journey, and the remainder of which she had given to her family, consisting of husband and two daughters. As in the course of twenty-four hours the woman presented no symptoms, she was permitted to go her way. Two days later, after a preliminary diarrhea, the husband was stricken with cholera, and died after a few days; at the same time one of the daughters was attacked with cholera, and died in the course of ten days; the second daughter became ill, but recovered. In the first two the diagnosis of cholera was confirmed by bacteriologic examination. There had not previously been, nor were there subsequently, any other cases of cholera in the town. On inquiry it was learned that the articles of food that the woman had brought from Hamburg, and which had been partaken of by her family, had been obtained from the shop of her son-in-law, which was located on a street in which numerous cases of cholera developed simultaneously with and subsequently to those in the husband and daughter.

The inferences from this report are obvious. Healthy persons may be the means of transmitting cholera through the medium of the food-supply. The lesson to be learned is that in times of exposure or danger the source of all articles of food should be rigidly scrutinized, and additional precautions should be taken in the preparation of food to insure its innocuousness.

THE CHEMICAL POISONS OF DISEASE.

IT was recognized from the first by some of the keenest intellects in medicine that the germ-theory of disease, as once more put forth under the influence of KOCH'S discoveries, was inadequate to explain observed phenomena. Not a little courage was required to stand up and be called "old fogy," or "reactionary" by the unthinking, but one could not for the dread of obloquy stifle his reason and his scientific conscience. The proof of the etiologic moment of bacteria embodied in the celebrated "four rules of KOCH" was manifestly insufficient, unless the microbe was admitted to be the sole factor in infection. The first—not to prove logi-

cally, but—to clearly demonstrate, by modern experimental methods, the necessity of adding a fifth rule, namely, that the suspected microbe should be capable of generating within and without the body a poison that, when inoculated, should reproduce the morbid phenomena, was unquestionably PROF. VAUGHAN, of Ann Arbor; and at the Newport meeting of the American Medical Association (1889) he defended this doctrine against the skepticism of one of the leading bacteriologists of America; exhibiting, at the same time, crystals of a poison believed by him to be that of typhoid fever. America must, therefore, be credited with this further step toward the truth. Nevertheless, the whole truth is not yet apparent. The next step will be the demonstration of the morphologic and chemic factors of "susceptibility" on the one hand, and of immunity on the other. Something has been done in this line, but the results are still obscure.

A "CHILDREN'S HOME" AT THE WORLD'S COLUMBIAN EXPOSITION.

THE "Board of Lady Managers" of the Columbian Exposition has undertaken to build and equip a structure devoted to children and their interests. We extract from their circular the following information:

A series of manikins will be so dressed as to represent the manner of clothing infants in the different countries of the world, and a demonstration will be made of the most healthful, comfortable, and rational system of dressing and caring for children according to modern scientific theories; while their sleeping accommodations, and everything touching their physical interests, will be discussed. Lectures will also be given upon the development of the child's mental and moral nature by improved methods of home training.

The building will have an assembly room containing rows of little chairs, and a platform from which stereopticon lectures will be given to the older boys and girls, about foreign countries, their languages, manners, and customs, and important facts connected with their history. These talks will be given by kindergartners, who will then take the groups of children to see the exhibits from the countries about which they have just heard. This audience room will also be available for musical, dramatic, and literary entertainments, which will be carefully planned to suit the intelligence of children of varying ages.

One of the numerous associations interested in such work will probably conduct a crèche, where young children can be left in the care of experienced nurses, who will provide for all their wants while their mothers are visiting the various departments of the Exposition.

On the ground-floor of the building there will be a large square court, which will serve as a playground for the children.

An appeal for funds is made to further this work, and the worthy object certainly deserves material encouragement.

REVIEWS.

THE PRINCIPLES OF THEORETICAL CHEMISTRY, WITH SPECIAL REFERENCE TO THE CHEMISTRY OF THE CARBON COMPOUNDS. By IRA REMSEN, Professor of Chemistry in the Johns Hopkins University. Fourth edition, revised. Small 8vo, pp. 322. Philadelphia: Lea Brothers & Co., 1892.

THIS work has been so favorably received, as evidenced not only by the quick succession of editions, but also by its translation into Italian and German, that it is scarcely necessary to do more than chronicle the appearance of the fourth edition. The reputation of the author is ample guarantee for the accuracy and aptness of its contents. In the preface to the present volume he states that in preparing the revision he was at first inclined to change the whole character of the book, and deal largely with the recent developments in general chemistry. He has adhered, however, to the original scope—that is, discussion and explanation of the accepted views in regard to the structure of chemical compounds.

To the student who intends pursuing a thorough course in chemistry, or to the teacher of that science, the work will prove of great value. The author combines the advantage of thorough knowledge of the subject and capacity for presenting principles in clear and intelligible form. The work is, therefore, a correct presentation of the present aspects of the science, and a safe guide in the exposition of those principles.

The allusion in the preface noted indicates that in any future edition the scope of the book will be somewhat changed, and in consequence we may expect to find a more detailed discussion of the thermal relations of chemical action than is now afforded by it. This will be a material advance in its usefulness.

The typographical features are entirely satisfactory, but a decidedly more elaborate index is undoubtedly needed.

ACCIDENTS AND EMERGENCIES. A Manual of the Treatment of Surgical and Medical Emergencies in the Absence of a Physician. By CHARLES W. DULLES, M.D. Fourth edition, thoroughly revised and enlarged. With new illustrations. 8vo, pp. 154. Philadelphia: P. Blakiston, Son & Co., 1892.

THAT this little manual has reached a fourth edition must be accepted as evidence that it has a distinct field of usefulness. The book deals with a subject and is addressed to an audience to which the difficulty attaches not of a lack of something to say, but of a wise discrimination in the selection of what should be said and what should be left unsaid. There exists the constant danger that lurks beneath imperfect knowledge. Dr. Dulles has performed his task most creditably. Within the limits assigned him he has pointed out the means of meeting most of the emergencies that are likely to be encountered in an ordinary experience that may be safely intrusted to persons unfamiliar with medical and

surgical methods. He wisely cautions against undue interference, and points out that the measures taken should, in most cases, be but provisional and preliminary to the presence of the medical man. If we have a single criticism to make of this useful little book, it is that we should scarcely place within the control of the patient—or rather the public, to whom the volume is addressed—the tincture of opium; and we are not sure that we would not also include the camphorated tincture of opium in the same proscription.

CANCER OF THE MOUTH, TONGUE, AND ESOPHAGUS: THEIR PATHOLOGY, SYMPTOMS, DIAGNOSIS, AND TREATMENT. By FREDERICK BOWREMAN JESSETT, F.R.C.S., Surgeon to the Cancer Hospital, Brompton. 8vo, pp. 177, with nine woodcuts. London: Baillière, Tindall & Cox, 1892.

THIS volume is a reprinted and partially re-written portion of a previously published work of the author. In it comparatively little is to be found that is not already attainable in the standard text-books and encyclopedias. Pathology receives but scant attention; while the statistics and deductions therefrom, which form a very prominent feature of the work, are largely discounted by the inclusion of pre-antiseptic cases with those of more modern technique.

While no literary production of a man of large experience can fail entirely in merit and permanent value, so it is with this book, but not in sufficient degree to commend it to a wide circulation or to the position of being a mile-stone of surgical progress.

BOOK ON THE PHYSICIAN HIMSELF AND THINGS THAT CONCERN HIS REPUTATION AND SUCCESS. By D. W. CATHELL, M.D. Tenth edition. Author's Final Revision. 8vo, pp. 343. Philadelphia: The F. A. Davis Co., 1892.

THIS work has reached a tenth edition. It is, therefore, in demand. Doubtless it serves a good purpose. Little objection can be taken to its directions as to what to do and what to avoid. One might desire a higher *motif*—but probably the book would then be less popular and less useful.

SOCIETY PROCEEDINGS.

SOUTHERN SURGICAL AND GYNECOLOGICAL SOCIETY.

Fifth Annual Meeting, held at Louisville, Ky., November 15, 16, and 17, 1892.

FIRST DAY—NOVEMBER 15TH.

THE Association was called to order by the President, DR. J. MCFADDEN GASTON, of Atlanta, Ga.

An "Address of Welcome" was delivered by DR. L. S. MCMURTRY, of Louisville, Chairman of the Committee of Arrangements, the response to which was made by the President.

The first paper read was by DR. BEDFORD BROWN, of Alexandria, Va., entitled "Personal Recollections of the Late Dr. Benjamin W. Dudley, of Lexington, Ky., and His Surgical Work."

The speaker, a private pupil and assistant to Dr. Dudley for two years, paid an eloquent tribute to his memory, and characterized him as the greatest lithotomist that this country has ever produced, and the most successful in the history of the world.

DR. A. V. L BROKAW, of St. Louis, Mo., read a paper entitled "Experiences in Pelvic Surgery." He stated that of all the difficult surgical problems, those met with in the pelvis are the most trying; a diversity of conditions, complications, and unexpected happenings is ever presenting. As his experience became larger, Dr. Brokaw was free to confess his inability to correctly diagnosticate the character of abdominal and pelvic troubles. He had diagnosticated pus-tubes and found extra-uterine pregnancy; had diagnosticated extra-uterine pregnancy and found pus; had diagnosticated ovarian lesions and found the trouble located in the tubes, and *vice versa*. When well-defined pelvic lesions exist, nothing but radical measures succeed. The one condition above all others requiring exploratory incision is suspected extra-uterine pregnancy. It is good surgery to open the abdomen, and not wait for all the classical signs to appear. The symptoms of extra-uterine pregnancy are so frequently obscure and unreliable that a radical position should be taken.

DR. WILLIAM WARREN POTTER, of Buffalo, indorsed the making of an early exploratory incision in cases of suspected extra-uterine pregnancy.

DR. JOSEPH TABER JOHNSON, of Washington, said that as soon as the surgeon diagnosticated an anatomic, pathologic, or histologic abnormality in the abdominal cavity, this should be removed. Exploratory operation is justifiable in cases of suspected extra-uterine pregnancy, and further procedures should be based upon what is found on making the exploration.

DR. W. E. B. DAVIS, of Birmingham, Ala., stated that in many cases good is accomplished not so much by the local treatment as by general care, keeping the bowels open, and giving constitutional treatment.

DR. CORNELIUS KOLLOCK, of Cheraw, S. C., read a paper entitled "Craniotomy upon the Living Fetus is Not Justifiable." He said that the operation implied the death of the fetus and a frightful mutilation of its body, often accompanied by serious lacerations of the vagina and adjacent tissues of the mother. Recent advances in obstetrics, gynecology, and abdominal surgery have demonstrated that a timely resort to Cesarean section in pelvic obstruction is the great factor to success. Dr. Kollock expressed the conviction that in 85 or 90 per cent. of the cases of obstruction of the pelvis forbidding the delivery of the fetus in the natural way, both mother and child could be saved by this procedure.

DR. W. D. HAGGARD, of Nashville, expressed the belief that when the profession fully realizes the number of lives saved by Cesarean section, performed in preference to craniotomy, there will be no doubt as to which operation will be selected.

DR. HUNTER MCGUIRE, of Richmond, stated that he favored Cesarean section under the conditions named.

DR. L. S. MCMURTRY, of Louisville, said that a few years ago it would have been impossible for one to have presented the views that Dr. Kollock had without meeting with violent opposition. Cesarean section was then regarded as an extremely heroic operation, from which

until recent years the mortality was very great; but since it has been carried to its present degree of perfection by Saenger and others, it has strengthened the opinions of abdominal surgeons, who now consider it preferable to craniotomy.

DR. ARCH. DIXON, of Henderson, Ky., related that in a case in which he was called in consultation, he advised Cesarean section, but the family physician insisted upon his doing craniotomy; while every precaution was taken with regard to rendering aseptic the field of operation, the woman developed pelvic peritonitis and died within four days. A Porro operation would probably have saved the life of the woman and, perhaps, that of the child.

DR. W. D. HAGGARD, of Nashville, read a paper entitled "A Case of Extensive Hematocele Resulting from Tubal Pregnancy Rupturing into the Broad Ligament."

The fetus was not found, but that the case was one of tubal pregnancy, with rupture into the broad ligament, is clearly established by the clinical history and post-mortem appearances. The patient admitted having had intra-pelvic trouble previously (presumably gonorrhea), for which she was treated locally. At the time of the accident, caused by jumping from a wagon, the menstrual period had been passed. There was a fitful yet persistent bloody flow from the uterus during the entire illness. There were frequent paroxysmal, colicky pains in the lower abdominal and pelvic regions. A tumor was present above the pubes, which was thought to be the gravid uterus. There was persistent refusal to submit to a digital examination, probably from the fear that the existence of pregnancy would be detected. At the post-mortem examination the uterus was found enlarged and softened, with a patulous os, from which a serosanguineous, stringy fluid escaped. The left tube was enlarged and presented a well-defined cavity, from which the fetus had escaped. Microscopic examination demonstrated the existence of a deciduous membrane. The rectum was discolored by the presence of blood dissecting around it, and producing constriction and partial death.

DR. S. M. HOGAN, of Union Springs, Ala., reported a case of "Fibroid Tumor of the Uterus; Pregnancy; Rupture About the Fourth Month; Operation; Specimen." The patient was a colored woman, twenty-eight years old, with a fibroid tumor of the uterus, who presented the symptoms and history of rupture of the uterus at about the fourth month of gestation. It was thought that the rupture did not immediately destroy the fetus, which continued to grow in its new position. It is probable that if the case had been operated on immediately after the rupture, the patient's life would have been saved.

DR. GEO. A. BAXTER, of Chattanooga, Tenn., read a paper entitled "A New Operation for the Radical Cure of Inguinal Hernia."

The operation consists in a prolongation of the incision, after the ordinary management of the sac and after ligation, through the internal ring into a more or less extensive celiotomy, as the exigencies of the case demand; lifting the neck of the sac into the abdominal opening above the ring, and its fixation there by deep suturing; cutting off the sac close above the peritoneum, and its closure by buried suture; and a final closure of the abdominal opening by this and a more superficial set of sutures, which pass across above the closed sac and peritoneum and underneath the deep fasciæ, and are intended to approximate the homologous tissues of the abdominal wall. The ring is closed with crucial sutures dipping over the cord and traversing the tissues, and the seminal canal is closed with deep sutures.

The points of originality claimed are: A line of incision suitable for any inguinal hernia; by the fixation of the sac above the peritoneum, a deflection of all abdominal expulsive force from the ring and canal; the thickened lining of the internal ring, and the method of closure of the abdominal incision. The advantages claimed are: Rapidity of cure, with avoidance of the necessity of a truss; deflection of the expulsive force from the internal opening and canal to the abdominal parietes; the ability to approach the constriction either from without or within; the avoidance of the necessity for traction on the sac or its contents; ample room for the treatment in diseased conditions of the sac or its contents, including a gut-operation, if necessary.

DR. HENRY O. MARCY, of Boston, followed with a paper on "The Cure of Inguinal Hernia in the Male," in which he made the following surgical considerations essential for the cure of hernia: *First.* Strict aseptic conditions. *Second.* A free dissection, to lay bare the internal ring, to permit of the enucleation of the peritoneal sac, and the separation and elevation of the cord out of the wound. *Third.* The disposition of the sac. The separation of the sac to its very base before removal is to be recommended as the rule. There are times, however, when it is not easy to free the peritoneal pouch, owing to adhesions to the surrounding tissues; and in large, old, irreducible herniæ, in which there is a more or less intimate fusion of the contents with the inner wall of the sac, it is generally better to open the sac before ligating or sawing through its neck.

DR. W. H. WATHEN, of Louisville, read a paper entitled "The Treatment of Umbilical and Ventral Hernia," in which he emphasized the importance of studying carefully the best methods of treating hernia, because of the increased frequency of the affection following celiotomy, and especially because modern methods of surgery make the operation far less dangerous than it formerly was. Except in extreme cases, the operation for the radical cure of hernia in the hands of competent surgeons is practically devoid of danger, and the result may be made permanent. Modern antiseptic and aseptic measures have practically eliminated the danger that formerly arose from infective peritonitis. In many cases ventral hernia can be prevented by a proper closure of the abdominal wound. In order that there may be no hernia following celiotomy it is necessary to get perfect union by adhesion of all of the layers of tissue forming the abdominal wall—the peritoneum, the muscles, the deep and superficial fasciæ, and the skin; but especially must there be union of the layers of fascia, else the other layers will gradually separate and hernia will follow. This result cannot be attained unless the cut edges of the fascia be brought in even and perfect apposition for a time long enough for strong union to take place.

SECOND DAY—NOVEMBER 16TH.

DR. W. O. ROBERTS, of Louisville, read a paper on "The Treatment of Ununited Fractures by Resection,"

relating the various procedures that have been employed at different times and by different surgeons. He expressed the opinion that resection and a fixed dressing will be followed by just as good results as if sutures or other contrivances for fastening together the extremities of the fragments are used.

DR. W. C. DUGAN, of Louisville, read a paper entitled "Symptoms of Fracture: their Importance and Significance."

DR. BEDFORD BROWN, of Alexandria, Va., related the case of a boy who sustained a compound comminuted fracture of the skull in 1860, but who retained perfect consciousness, and had no symptoms of compression of the brain. The spiculæ of bone were removed, and recovery followed.

DR. J. H. LETCHER, of Henderson, Ky., advised against the too hasty resort to the use of trephine and chisel in injuries of the skull.

DR. J. H. MCINTYRE, of St. Louis, reported a case of traumatic insanity in a railway employé, in which he trephined with success. The fracture was an extensive one, and occurred in the upper Rolandic region.

DR. WILLIAM WARREN POTTER, of Buffalo, called attention to fracture of the internal table of the skull without fracture of the external; whence the great liability to error in diagnosis.

DR. HOWARD A. KELLY, of Baltimore, related the case of a man who fell, and was brought to the Presbyterian Hospital in a comatose state. Careful examination revealed the fact that the man had diabetic cataract with fracture at the base of the skull.

DR. WILLIAM T. BRIGGS, of Nashville, stated that he had trephined in fifty cases of epilepsy. Four-fifths of the cases operated on were relieved temporarily but not permanently.

DR. T. A. REAMY, of Cincinnati, mentioned the case of a man who had fallen from the second story of a courthouse, sustaining a fracture of the skull, but had never had epilepsy or any bad symptom following the injury.

Dr. L. S. MCMURTRY, of Louisville, read a paper entitled "Ovarian Cystoma with Twisted Pedicle and Peritonitis; Ovariotomy in Second Week of Typhoid Fever; Recovery."

DR. HORACE GRANT, of Louisville, contributed a paper on "Intestinal Anastomosis by a New Device." He stated that he had endeavored to perfect some instrument to simplify direct suture in the performance of intestinal anastomosis, but that sufficient time had not elapsed since the completion of the instrument to test it fully. It is to be used only after resections. The two blades of the clamp are oval scissors, one-fourth of an inch in transverse and two and a half inches in longitudinal diameter. The arms of the clamp are made long enough to allow of an introduction of five inches. After the gut is exposed, a strand of iodoform-gauze is passed through the mesentery and made to constrict the intestine fully six inches from each point of intended resection. The mesentery is tied off over the portion to be resected with fine silk, in two-inch loops, cut close, and dropped in the usual way. When the resected portion is removed, the extremities of the gut may be washed out if desired. While the two extremities of the divided intestine are held parallel, one blade is entered in each, allowing at least one and a half inches of gut beyond the proposed anastomotic opening, to permit of invagination of the extremities. The clamp is tightened, and the two surfaces thus firmly held are rapidly stitched together by a continuous overhand Lembert suture of fine silk. Two rows of parallel sutures, as suggested by Abbe, may be used if desired, though it has seemed that one is enough. With the aid of the clamp the work can be done far more rapidly and accurately than otherwise. When the suturing is finished the clamp is tightened, if need be, and a long-bladed dressing forceps is passed in the bowel and the oval plug removed or pushed in. The scissors-action of the blades, together with the ten or fifteen minutes' pressure, prevents any hemorrhage. The clamp is now withdrawn, and the ends are invaginated in the usual way.

DR. J. MCFADDEN GASTON, the President, delivered his Annual Address, taking for his subject "Compatibility of Conservative and Aggressive Surgery." He said that the circumspect philosophy of former days taught that what man has done, man may do; but the developments of more recent times show that whatever is practicable may be undertaken, without regard to precedents; conservative and aggressive processes are combined in progressive surgery. Conservatism in the use of all of the appliances of surgery is not inconsistent with the application of the most energetic means of relief in structural disorders. It is necessary to make a distinction between rashness in the employment of operative measures and boldness in the use of surgical means of relief when clearly indicated. Real advances in surgical practice have not been the result of operations without due consideration, but have accompanied the painstaking investigation of the conditions requiring the knife, and caution in the performance of operations. As a preliminary to any surgical procedure of a radical nature, correct diagnosis is essential, but to obtain a proper understanding of a deep-seated disorder it is often requisite to make an exploratory operation of greater or less magnitude. The information based upon such an exploratory measure serves as a guide to any further surgical procedure. Ignorance and inexperience often lead to sad results in meddlesome surgery, in consequence of which limbs are sacrificed or organs mutilated, to gratify the desire of a would-be surgeon to figure as a bold operator.

DR. AP MORGAN VANCE, of Louisville, read a paper entitled "A Plea for More Rapid Surgical Work." He stated that some surgeons pay little attention to the time consumed in an operation, or to nicety of manipulation and dextrous use of instruments. On numerous occasions death has occurred from prolonged anesthesia, a long time being consumed in operating.

DR. CHARLES A. L. REED, of Cincinnati, contributed a paper entitled "Surgery of the Ureters, with a Report of Cases." For purposes of diagnosis the following physical means may be employed: (1) Exploration of the lower extremity of the ureter by digital examination, (*a*) through the vagina, (*b*) the rectum, and (*c*) the bladder; (2) Exploration of the lower extremity of the ureters by the sound passed through the urethra and bladder into the ureters; (3) Exploration of the central portion of the ureters by abdominal lumbar palpation—an expedient of practical value only in cases of extreme urethral distention occurring in very thin subjects; (4) Exploration

of the upper extremity of the ureters by exploratory nephrotomy. Since catheterization of the ureters has been popularized in this country, chiefly through Kelly, and since the technique of the procedure has become understood by those who have studied it, the diagnosis of disease within and surrounding these tubes is vastly more common. Digital exploration through the urethra and bladder is a simple expedient so far as the surgeon is concerned, and often leads to the elucidation of important pathologic facts, but it is not without danger to the patient. Abdominal section for the diagnosis of ureteral conditions, notably in cases of suspected calculus, is entirely justifiable. Dr. Reed reported a case of peri-ureteritis with stricture, in which kolpo-cysto-ureterotomy was performed, with recovery. In a second case, in which there was cicatricial stricture of an excised ureter, with hydronephrosis, nephrectomy was performed.

DR. WILLIAM WARREN POTTER, of Buffalo, read a paper entitled, "Specialism in Medicine, Particularly as Related to Surgery and Gynecology." He summarized his argument thus: 1. There is essential need for specialists. Divisions of labor in every field are demanded, and nowhere more than in medicine. 2. Specialists being a necessity, they must equip themselves by years of study, and devote themselves to a still greater number of years of general practice before they are justified in offering themselves as specialists. 3. They must conduct themselves in such a way as to merit the respect of the general practitioner, and to invite his coöperation in their work. 4. The unwritten ethics of specialism demand that there shall be reciprocal relationship maintained, not only among specialists themselves, but also between specialists and general practitioners. 5. The opportunities for perfection in special lines of medical study are so great, and medical literature in both journalistic and text-book form is so rich that an awful responsibility is entailed. 6. The schools ought to discourage any and all students who give promise of entering upon a specialty as soon as the college doors are passed, and before the swaddling-clothes of the professional tyro are slipped.

DR. R. M. CUNNINGHAM, of Birmingham, Ala., followed with a paper entitled, "The General Practitioner as a Gynecologist." He said that the general practitioner should not undertake work that can be better and more safely done by the specialist, provided one is obtainable. He should be willing to do and attempt the most radical and dangerous operations when necessary to save life, provided a specialist or one better prepared to do the work cannot be obtained. In cases not necessarily dangerous, or in which life does not become more or less a burden, but in which a cure can be effected only by a radical procedure, but which may be materially benefited, or symptomatically relieved by milder methods, he should adopt the latter and not the former. In many cases the field is clearly his own, belongs to him, and he should be competent and prepared to treat them with safety and success.

DR. W. F. WESTMORELAND, of Atlanta, read a paper on "Specialism in Medicine." He said that there are two kinds of specialists: the one with preconceived ideas, which become warped; the other kind is the man who has worked his way by his generally acknowledged ability in any particular line.

DR. HOWARD A. KELLY, of Baltimore, read a paper entitled "A Preliminary Report on the Morphology of Ovarian and Myomatous Tumors." He said that the form of abdomen characteristic of large ovarian cysts is a globular or ovoid distention of a part or the whole of the abdominal wall, pushing out the infra-umbilical portion much more than the supra-umbilical; at least, so long as the tumor occupies the lower half or two-thirds of the abdomen. This enlargement is uniform in parovarian cysts and polycystic tumors exhibiting but few bosses, because the latter are composed of one or two large cysts associated with a mass of smaller ones, and the large cyst is best accommodated in the median line in the distended concave anterior abdominal wall, while the smaller ones at the side or back consequently do not show. Prominent exceptions to the general rule just enunciated that pelvic tumors distend most markedly the inferior abdominal zone are the notable stretching of the upper abdomen in very fat woman with large ovarian tumors, and the like distention in rachitic dwarfs in advanced pregnancy. Nodular myomata, on the other hand, stand out in marked contrast with the smooth outlines of cystic tumors, in giving to the lower abdomen a lumpy bossed appearance, thus exhibiting through muscles and skin a softened exaggeration of their irregular outlines. This peculiarity still remains prominent when the tumors are softened, and in consequence of having undergone fibro-cystic degeneration.

Cystic tumors filling the pelvis and part of the abdomen are but rarely found to originate in some upper abdominal tumor. Dr. Kelly presented a photograph of an enormous kidney, containing over a gallon of pus, extending from the pelvic floor up through the abdomen, and pushing up the left ribs.

THIRD DAY—NOVEMBER 17.

DR. A. M. CARTLEDGE, of Louisville, read a paper entitled "The Present Status of Drainage in Surgery," which will be published in a future number of THE NEWS.

DR. WILLIAM H. MYERS, of Fort Wayne, Ind., read a paper on "The Treatment of Tuberculous Peritonitis." He said that active treatment should be instituted as soon as the diagnosis is made. Abdominal section for tuberculous peritonitis is one of the recent triumphs of surgery. Dr. Myers has treated three cases of tuberculous peritonitis by abdominal section, washing out the abdominal cavity, and drainage, with complete recovery.

DR. G. FRANK LYDSTON, of Chicago, followed with a paper entitled "Bacteriologic Research in its Relation to the Surgery of the Genito-urinary Organs." He expressed the opinion that modern bacteriologic and pathologic research has nowhere been more productive of scientific and practical progress than in the special field of genito-urinary surgery. He did not attempt to decide the question as to whether or not the organisms that are, under certain circumstances, constantly to be found in the secretions of the genito-urinary tract, become the causal factors in the pathogenesis of various forms; or, on the other hand, to decide the precise relation of heterogenetic organisms to the same morbid processes. The relation between what may be termed the normal germ and germs of non-pathogenic properties must certainly be left to the practical microbiologist. Certain inferences and practical deductions may be made from a knowledge of the evolutionary laws of progression, differentiation,

and adaptation to environment. No doubt many diverse forms of disease of microbic origin are embraced under the ominous term of urinary infection. The present state of knowledge does not admit of arbitrary differentiation. It is sufficient to say that many forms of organic and functional change affecting the genito-urinary tract are of microbic origin. These processes range in severity from a general infection, with effusion and perhaps suppuration in joint-cavities, to so simple a local lesion as a chronic prostatic irritation.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., read a paper entitled "Ovariotomy in Old Women." He reported three cases operated on successfully, and expressed the opinion that prolonged anesthesia and manipulation within the peritoneal cavity would have proved fatal. The first patient was sixty-seven years old, and the tumor removed weighed fifty-two pounds. The second case was one of multilocular ovarian tumor. The patient was sixty-eight years of age, and the tumor weighed sixty-four pounds. The third case was one of ovarian tumor weighing fifty-six pounds. The patient was sixty-seven years old, though she appeared to be much older. Improved methods, quicker operations, antiseptic technique, and provisions against shock have demonstrated that old age is no contra-indication to ovariotomy.

DR. BEDFORD BROWN, of Alexandria, Va., read a paper entitled "The Simple, Septic, Traumatic, and Specific Forms of Cervicitis, and their Treatment." Simple cervicitis arises alone from simple causes. It never originates from infection of any kind. It can exist for an indefinite period without infecting surrounding structures. The treatment is to be directed to the interior of the cervical canal alone, and includes the application of silver nitrate, copper sulphate, carbolic acid, and iodine. Septic cervicitis always arises from septic infection. Contact with the os of portions of putrescent placenta, membranes, coagula, or septic discharges from diseased uteri are the common causes. Antiseptic measures alone can counteract septic infection and inflammation, whether in the form of septicemic fever or local inflammatory action. All other agencies are simply palliative or adjuvant. Traumatic cervicitis is simply inflammation and congestion of the cervix from wounds inflicted during labor, abortion, or by the use of dilating instruments. This form of cervicitis is to be treated by means of solutions of silver nitrate, varying in strength from a scruple to half a dram to the ounce, applied in the canal and over the entire cervix. Specific cervicitis may arise either from gonorrheal or syphilitic infection. In the early stages douches containing hydrogen dioxide in the proportion of one part to three-fourths of boiled water may be resorted to, and also potassium permanganate, one grain to the ounce of water.

DR. JAMES EVANS, of Florence, S. C., contributed a paper on "Shock." He stated that in the severe injuries inflicted on the body by accident, and in the major operations of surgery, not the least element of danger to life is the condition of shock that rapidly supervenes. The degree of shock is not determined solely by the extent and gravity of the physical injury. Certain idiosyncrasies of constitution, the character of the force that inflicted the injury, and the circumstances under which it occurred, are potent factors in its determination. Individuals of a highly wrought and exquisitely nervous organization bear pain with far less fortitude, and are more susceptible to shock than those of dull and obtuse intellects and blunted sensibilities. A case in point was reported. In laying the foundation of a bridge, an immense block of granite weighing over a ton was being lowered into a pit forty-four feet deep, at the bottom of which was a man who was to announce when it was in proper position. When this huge block of stone was suspended over the pit, the cable holding it began to slip, and the man below was warned to crouch in a corner, as it would inevitably fall. The rock did fall, and the man in the pit miraculously escaped without injury, but he was taken out in a perfectly lifeless condition, and was exceedingly ill for more than a week.

DR. GEORGE ROSS, of Richmond, Va., read a paper entitled "A Manipulative Mistake and its Consequences." He related the case of a woman who had suffered from unremitting agonizing tenesmus occasioned by a mass which she carried in her bladder for seven years, and which on inspection proved to be a pledget of absorbent cotton once saturated with iodine, in the shape of a truncated cone, and thinly incrusted with calcium phosphate. The patient believed that it was introduced by her first physician, who, on attempting to apply an intra-uterine dressing, mistook the urethra for the cervical canal.

DR. WILLIAM PERRIN NICOLSON, of Atlanta, made some remarks on "Hare-lip Operations," in which he advocated the use of a simple suture instead of a pin, and also recommended paring the edges.

DR. EDWIN RICKETTS, of Cincinnati, read a short paper entited "Cholecystotomy, with the Report of a Case." He stated that he had operated thirteen times for obstruction of the gall-ducts. The patient, a married woman, thirty-four years old, had never suffered markedly from jaundice, or from acute attacks of hepatic colic. There was no marked distention in the region of the gall-bladder. The abdominal wall was at least three inches thick. Some general tenderness of the liver was elicited by percussion. The patient had, the characteristic putty-colored stools, and was losing flesh rapidly. Dr. Ricketts advocated allowing a glass drainage-tube to remain in until the common duct was opened, and then, if necessary, to make an anastomosis between the gall-bladder and the duodenum.

The following officers were elected:

President—Dr. Bedford Brown, of Alexandria, Va

First Vice-President—Dr. Joseph Price, of Philadelphia.

Second Vice-President—Dr. George A. Baxter, of Chattanooga.

Secretary—Dr. W. E. B. Davis, of Birmingham, Ala.

Treasurer—Dr. Hardin P. Cochrane, of Birmingham, Ala.

Chairman of Committee of Arrangements—Dr. Albert Miles.

The next meeting is to be held at New Orleans, La., on the second Tuesday in November, 1893.

Dr. Henry T. Byford has been elected to the chair of Gynecology in the College of Physicians and Surgeons, Chicago, to fill the vacancy made by the death of Dr. A. Reeves Jackson.

CORRESPONDENCE.

ASEPTIC SURGERY IN THE HOSPITALS OF PARIS IN 1892.

To the Editor of THE MEDICAL NEWS,

SIR: During the past six years I have made three visits to Great Britain and the Continent of Europe, viz., in 1886, 1890, and 1892, and I have studied with much care and interest the progress and development of aseptic surgery in these countries. During the summer of 1892 I paid special attention to what I saw of the surgery of London, Berlin, and Paris. The present letter will treat only of aseptic surgery as I saw it in the hospitals of Paris in 1892.

The history of the influence of bacteriologic studies in the development of aseptic surgery is one of the most interesting and important of the modern records in the science of medicine. The wildest dreams of our imagination could never have foretold the momentous consequences that would result from the discovery and investigations of bacteria and other minute microörganisms. It is a striking illustration of the fact that we often do not and cannot appreciate how far-reaching and important a scientific discovery may be, even when at the time it seems to have no practical use or benefit. To the great Prof. Pasteur's labors, chiefly, we owe the foundation upon which antiseptic and aseptic surgery have been built. He demonstrated that the processes of fermentation and putrefaction are entirely due to the presence and action of these microscopic germs, and if these are absent such changes will never take place. This was followed by the labors of Prof. Tyndall, of England, who conclusively proved that if we would completely exclude the living germs or bacteria of the air from infusions of animal or vegetable matter, they could be kept indefinitely. Infusions, such as beef-tea, mutton-broth or chicken-broth, and infusions of hay and other vegetable matters, may be kept for years, if, after boiling to sterilize or kill the living germs contained in them, they are hermetically sealed to exclude the air which contains the germs. He also found that if the mouths of the vessels containing these infusions are plugged up with aseptic cotton, to filter out the germs as the air passed in and out, these infusions could be preserved indefinitely.

To Prof. Lister we owe the grand idea of excluding the bacteria and other germs from wounds, thus creating the then new science of antiseptic surgery. It is perfectly true that aseptic surgery, as now practised in this country and in Europe, is very different from and far superior to the cumbrous procedures and dressings devised and practised by the father of antiseptic surgery; nevertheless, we must never forget that to Prof. Lister we owe the practical development of the principles underlying what we now know to be the true science of aseptic surgery.

The carbolic spray, once universally applied, has been almost entirely abandoned, and during my recent visit to Europe I never saw it once used. The many layers of protective gauze, mackintosh, etc., are now replaced by a simple layer of iodoform-gauze, with an abundant layer of aseptic cotton firmly retained by bandages.

Another remarkable change is in the growing disbelief in the efficacy of the ordinary antiseptic solutions when used as germicides. A solution of carbolic acid has been shown to be a very weak germicide, and the same may be said of a solution of boric acid and of the other solutions used commonly for this purpose. Mercuric chloride has until the present time been our sheet-anchor as a germicide. As we lost our faith in one germicide after another, we thought we could rely on that. Yet the iconoclasts are busy in their work of tearing down all idols in medicine, and now they have not left us this one. Recent investigations carried on at Johns Hopkins University (published in the *Johns Hopkins Hospital Bulletin* of April, 1891, p. 50) and at the University of Michigan (published in THE MEDICAL NEWS of October 1 and 8, 1892) have shown that solutions of mercuric chloride when used as a germicide are often inert, and still oftener actually injurious to the tissues when applied during surgical operations. The great surgeon, Lawson Tait, believes in no germicide except recently boiled water, and observation teaches us that the consensus of opinion of the great masters of surgery is fast settling upon the conviction that there are practically only two methods of keeping wounds aseptic. One is to keep wounds made during surgical operations as dry as possible, and the other is to use only recently boiled water in contact with them. Every instrument and surgical appliance must be sterilized either by boiling in water containing soda, or by being exposed to dry heat above the temperature of boiling water for at least one-half hour.

To this, of course, must be added absolute cleanliness of the operator, the assistants, nurses, and of all the appliances used in surgical operations—the operating-room and all the surroundings, of course, included. The present paper will, however, be confined to aseptic surgery as I saw it in three of the hospitals in Paris, namely, in the Hôtel Dieu, Hôpital Tenon, and the Hôpital Bichat. The Hôtel Dieu, the oldest hospital in Paris, was originally situated on the south bank of the Seine, and the old building is said to have been founded by Clovis II in the year 660. The present building is located on the north side of the Place Nôtre Dame, and was rebuilt in the years 1868–1878. Like many of the European hospitals, it is quadrangular in shape, with a courtyard in the center, and accommodates about eight hundred and fifty patients. The hospital is clean and well ventilated. Contagious diseases are not usually admitted, but are sent to special hospitals. Some cases of cholerine (so called) were in the hospital, and I saw in an English paper a statement that one hundred cases of cholerine (or cholera) had been admitted to the Hôtel Dieu the day I left Paris. I am unable to state of my own knowledge whether any of the cases of cholerine were really Asiatic cholera or not, but I saw in the morgue of the Hôtel Dieu several bodies of patients who had died of this disease.

The Hôtel Dieu has a very large number of patients attending daily for the purpose of being operated upon and prescribed for. These clinics are truly immense. The most famous surgeons of Paris are numbered among the hospital staff. Those on service at the present time are Lancereaux, Tillant, Verneuil, Panas, Proust, Cornil, Brequoy, and Labbé.

Dr. Henri Hartman, whom I met for the first time on August 25, 1892, is also acting as one of the surgeons of the hospital of Hôtel Dieu, and to him I am indebted for many courtesies during my stay in Paris. He invited me to meet him at the Hôpital Tenon on the following day, August 26, 1892. The Hôpital Tenon is a new hospital containing about one thousand beds, and in point of cleanliness and ventilation was in an admirable condition. I examined with great interest the lying-in wards, and found the most perfect arrangements for asepsis in them. From sixty to eighty confinements take place there per month, and since the introduction of strict asepsis, the mortality has been almost nominal.

The management of all the Paris hospitals is entirely vested in a Council of Administration, who make the appointments of surgeons and directors of the hospitals. All the subordinate positions, such as internes (or what we call resident physicians or students), are filled by competitive examinations. This same system is applied to the promotion of nurses and other employés of the hospital. At the last *concours*, out of 627 candidates for the position of interne, only 56 appointments were made.

The course of study for a student of medicine in Paris extends over a period of five years.

Bacteriologic laboratories are found in nearly all the Paris hospitals, and the internes or resident students are evidently familiar with their use, and are in every respect a very high class of men. They are thoroughly competent in the performance of their duties, and in the absence of the senior surgeons are almost daily called upon to perform many of the gravest operations of surgery.

August 26 and 27, 1892, I visited, with Dr. Henri Hartman, the Hôpital Bichat, and there found what I considered to be an ideal hospital. This hospital is small, consisting of only two wards, one for males and the other for females, and each containing about sixty beds. These wards are connected by an operating-ward containing ten or twelve beds. There are also the necessary administration buildings. This hospital is only used for operations and patients who are waiting their turn to be operated upon. I saw there aseptic surgery carried out with a perfection of detail and with such successful results as I have certainly never seen equalled elsewhere. I saw there six cases of celiotomy in various stages of recovery after having been operated upon—cases of cholecystectomy, nephrectomy, vaginal hysterectomy, amputations, and indeed all the graver operations of surgery. Almost all the histories of the cases show recovery without rise of temperature or suppuration. They start out in the Hôpital Bichat with the assumption that if an operation is aseptically performed, by an aseptic operator, on an aseptic patient, there should then be neither fever nor suppuration following a surgical operation. If rise of temperature takes place, the operator is at once attacked and blamed for imperfect surgery. If an operator has three or four such cases in succession, they have a nickname for him; he is called *cochon sale*.

Time will not permit me to describe all the interesting cases I saw. Among them was a case of ligation of the femoral artery on account of a traumatic aneurism, caused by erosion and penetration of the artery by a sharp exostosis on the femur. The artery was cut down upon and ligated above and below the injured portion with a successful result.

Another case was one of necrosis involving nearly all the shaft of the femur. After the removal of an immense sequestrum, the cavity was filled with the fresh and aseptic bone of a calf, which was broken up about as large as coarsely ground coffee, and the cavity was filled with it, with the result of the formation of a firm and solid thigh-bone. This case was operated upon about six weeks before I saw him, and was about to be discharged cured. Another case of a similar kind was awaiting operation. Dr. Hartman acknowledged that he had received the idea of doing this from an American surgeon, Dr. Senn.

On Saturday, August 27th, a woman was brought into the Hôpital Bichat apparently dying; temperature 107.8°, pulse scarcely perceptible, and partly delirious. The case was one of suppurating ovarian cyst, which had burst into the cavity of the peritoneum. After wrapping her in hot blankets and administering stimulants, a slight reaction set in, and celiotomy was immediately performed. The next morning at 9 o'clock, I saw her and she was rational, the pulse nearly normal, and with scarcely any fever. It seemed almost like seeing one raised from the dead.

The methods of operating are of the simplest character. The arms and hands of the operator and his assistants are, of course, thoroughly cleansed with soap and solution of corrosive sublimate, 1 : 2000, as well as the part of the patient's body where the operation is to be performed. As few instruments as possible are used, and these have been recently sterilized by boiling water, or dry heat at the temperature of 220° F. No sponges are used, their place being supplied by the use of balls of aseptic cotton. In the case of an amputation no ligatures are used for the vessels except such as silkworm-gut or catgut, and these are cut short. No drainage-tubes are used, or, in fact, anything that will prevent union by first intention. No plasters are used on the stump for fear of infecting the wound, as it is impossible to sterilize the usual adhesive plasters often used to keep the flaps of the stump in close apposition. The stump is dusted with iodoform, and iodoform-gauze is applied; then a very liberal supply of aseptic cotton-wool, firmly retained by properly applied bandages.

The operator must not, of course, touch anything from which infection might be conveyed to the wound. He is not allowed even to pass his hands over his own face, or to touch any part of his body with his hands during an operation. Such minute precautions as these may seem needless to some, but such is not the case, for, as has been well said, "Perfection is made up of trifles, but perfection is no trifle." After a somewhat long and varied experience in surgery, I must say that I have never seen such fineness of technique, and such magnificent results of surgery, as I beheld in the Paris hospitals.

It is rare to find a surgeon in Paris who has attained any eminence before the age of fifty years, but Dr. Hartman, I am informed, is only thirty-two years old, and is now acting as surgeon in three of the Paris hospitals. With my hearty good wishes, I venture to predict for him a brilliant and useful career.

Very respectfully yours,

ROBERT REYBURN, M.D.

714 THIRTEENTH STREET, WASHINGTON, D. C.

RUSH HOSPITAL FOR CONSUMPTION AND ALLIED DISEASES.

To the Editor of THE MEDICAL NEWS,

SIR: Will you give space to a statement in regard to an institution in Philadelphia which those interested in it believe to be worthy of the hearty support of the medical profession and of the community at large. This institution is the Rush Hospital for Consumption and Allied Diseases, which was organized in 1890 and incorporated September 15, 1890.

The object of the Rush Hospital is (1) to provide a place where cases of pulmonary tuberculosis can be received and treated exactly as other diseases are cared for in general or special hospitals; and (2) to supply an institution in which the treatment of pulmonary tuberculosis shall be carefully and exclusively studied with the hope of benefiting not only the patients treated in the Hospital, but also (by advancing the knowledge of its proper treatment) all persons afflicted with this disease.

The Rush Hospital has a full medical staff; it is supplied with exceptional facilities for treating those who come to it; and, if properly supported, it will furnish to rich and poor alike the advantage of every appliance now known, or to be discovered hereafter, for the cure or amelioration of this destructive disease.

In this country the provision for the treatment of pulmonary tuberculosis is very inadequate. Tuberculous patients are, as a rule, rejected by all general hospitals, as a result of which not only are many wretched sufferers deprived of the skilful care to be found in such institutions, leaving them to suffer and to be a source of great distress to those about them in small, ill-ventilated houses, with wretched surroundings, but also (a most serious matter) the danger of contagion from this disease throughout the community is increased.

In the entire United States there is no such hospital as the Rush Hospital, although it is said that New York will shortly have one, which is to be erected near New York City at a cost of about $300,000; and the Harper Hospital in Detroit, and various private but small sanitariums in the country are doing excellent work in the study and treatment of pulmonary tuberculosis. In Great Britain there are eighteen hospitals, capable of caring for from 6000 to 7000 patients every year, and these are supported with such liberality that one alone in one year received donations amounting to about half a million dollars, and on January 1, 1889, had a funded property worth $650,000. An institution of this kind is very much needed in this country, for there is no disease so widely dispersed through the community as pulmonary tuberculosis, and there is none which is so neglected or is regarded as so hopeless. It is believed that the establishment of hospitals for pulmonary tuberculosis in Great Britain has had an important influence in reducing the death-rate from this disease, while the success of hospital treatment has been admirably demonstrated in Germany, where remarkable instances of cure have been recorded.

It is greatly to be desired that the State of Pennsylvania should have an institution thoroughly equipped with the best means for the study and treatment of pulmonary tuberculosis. There are certain methods of treating this disease which, through such a hospital, could be provided for the very poorest person in the State without cost, and which, at the same time, could not be obtained by the very richest person in the State outside of such an institution. The fact is that there are certain methods of treating pulmonary tuberculosis that to-day cannot be employed anywhere in the State of Pennsylvania, and that never will be had in the State of Pennsylvania unless a hospital for the treatment of the disease is built and supported. It is believed that it would be of the greatest importance to everybody in the State if as many institutions were established for the treatment of pulmonary tuberculosis—which now kills annually many thousands of persons, and keeps in poverty many thousands more—as there are, for example, establishments for the treatment and care of the insane.

It was to supply this want that the Rush Hospital was established. So far, it has been supported largely by the gifts of the members of the Corporation itself. A hospital building has been prepared and opened at the Northeast corner of Twenty-second and Pine Streets, Philadelphia, and patients have been treated in it for about a year, with encouraging results, and the medical staff would be glad to have the sympathy and support of the members of the profession who share with them the conviction that the work of the Hospital is likely to be a useful one. The staff is made up as follows:

The consulting physicians are Alfred Stillé, M.D., J. M. Da Costa, M.D., Roland G. Curtin, M.D., Harrison Allen, M.D. The visiting staff consists of James Tyson, M.D., Thomas J. Mays, M.D., Lawrence F. Flick, M D., Judson Daland, M D. Dr. W. R. Hoch is laryngologist; Dr. B. Alexander Randall, otologist; Dr. Edward Jackson, ophthalmologist; Dr. Charles W. Dulles, surgeon; Dr. Joseph McFarland, pathologist. The physicians to the out-patient department are Dr. A. E. Tussey, Dr. W. W. Leach, and Dr. F. J. Burger.

These names will probably assure your readers that good scientific and practical work may be expected in the Rush Hospital, and it is hoped that any medical men who desire to do so will acquaint themselves further with the operations of the Hospital by a visit to it.

Yours respectfully,

ONE OF THE STAFF.

DECEMBER, 1892.

ENDOCARDITIS AND CEREBRAL EMBOLISM IN THE COURSE OF RHEUMATISM FOLLOWING GONORRHEA.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS, December 3d, p. 636, is quoted a case of endocarditis in conjunction with gonorrhea, reported by His in the *Berliner klin. Wochenschr.*, 1892, No. 40, p. 994, to which the following appears somewhat analogous:

C. L., thirty two years old, a florist, had an attack of gonorrhea in September, 1892. Soon afterward he was seized with rheumatism, from which he speedily recovered. In October I was called to treat him for a relapse, in which the temperature ranged between 102° and 103.5°, the joints of the right side only being affected. Under alkalies and salicylates the temperature rapidly fell to normal; but the joints continued somewhat painful. On November 9th the patient experienced pain in the region of the heart, and auscultation revealed the

existence of endocardial murmurs. While still under rheumatic treatment, and while the patient's subjective symptoms were so improved that he was impatient at being housed, I found him, at 4 P.M. of November 19th, with a temperature of 103° and a pulse of 100, full and strong, and on the right side feeling as though there was edematous tissue between the artery and the examining fingers. No swelling was apparent to the eye. Two hours later the patient became paralyzed on the right side (excepting the face), and his condition gradually grew worse, until death followed on the morning of November 27th. The absence of rheumatic history in the family and the absence of undue or unaccustomed exposure render it probable that the gonorrhea was the cause of the attack. No post-mortem could be obtained.

Respectfully,

FRANK W. THOMAS, M.D.

6 MT. AIRY AVENUE, GERMANTOWN.

OBITUARY.

Dr. George Ross, of Montreal.—The death of this well-known physician deprives the profession of the neighboring Dominion of one of its most distinguished members.

Dr. Ross was born in Quebec some forty-seven years ago, of a family of Scotch descent, which had been in Lower Canada from the cession. After a brilliant career in the Arts Department and in the Medical School of McGill College, he was for several years house-physician to Montreal General Hospital, and in 1872 succeeded the late Dr. Drake as Professor of Clinical Medicine—a position which he held until the death of Dr. R. P. Howard a few years ago, when he was transferred to the chair of Practice.

It was, perhaps, as a hospital physician that Dr. Ross attained his chief eminence. During the past half-century the Montreal General Hospital has been fortunate in having on its staff a number of men who understood fully the secret of teaching clinical medicine, men so impressed with the belief that the student must learn his art at the bedside that they were willing to spend hours in what to some would be drudgery, but what is in reality the very marrow of all teaching—transforming for the young mind the dry, hard facts of pathology into living knowledge—living because capable of dealing with the realities of disease. It has been the good fortune of the writer to follow some of the best clinical teachers of this generation—Jenner, Wilson Fox, Murchison, Traube, Bamberger, and Ernst Wagner. Greater praise cannot be given than to say that in systematic thoroughness, in exactness, in the art of bedside didactic, Dr. Ross had the method of Murchison. For there are two sorts of bedside teachers, the one content to expound, illustrate, and dilate upon his text—the patient under consideration—careless often whether or not the lesson is heeded; the other, regarding not alone the patient, but by question and answer, by personal supervision of the examination of the case, makes the student himself deduce the desired lesson. No more rigid, exacting, and painstaking teacher of medicine could be found than Dr. Ross. Always prompt and punctual, full of resource, and with a mind trained by long practice, and enriched by an unusually varied experience, he was, indeed, a model bedside instructor, and he has left his impress on the minds of scores of young men who came under his tuition.

Dr. Ross had also those peculiar qualities of mind (found as a rule in one or two doctors in every large city) which make the counsellor—a man who instinctively takes the sound view of a question, and whose judgment is clear and decisive, yet withal liberal, and free from all taint of the guile which too often gives a Ulysses-like character to the would-be leader among men.

Though not a prolific writer, Dr. Ross was a steady contributor to periodical literature, and the files of the Canada (now the Montreal) *Medical Journal* for twenty-five years abound in admirable reports and carefully considered articles from his pen. A full share of the honors of the profession was freely and gladly given to him. He had been President of the Medico-Chirurgical Society of Montreal, of the Canada Medical Association, and Vice-President of the Association of American Physicians, of which society he was a most valued member. Since the death of Dr. Howard he held the position of Vice-Dean of the Medical Faculty and Secretary of the Board of Governors of the Montreal General Hospital.

More than four years ago the symptoms of arterial disease became manifest, and fully aware of his condition he tried so to regulate his life that the school of medicine, to which his presence was so important, should continue to have the benefit of his services. Last winter he was able to give a considerable proportion of the lectures on medicine, and to engage actively in consultation work. During the past summer more severe symptoms developed, and it was evident to himself and to his friends that no further extension could be expected; and awaiting the end with the calm, philosophic spirit which had been the characteristic feature of his life, he passed away peacefully on the 8th instant, universally regretted by friends, colleagues, and students.

NEWS ITEMS.

The Southern Medical College Association has been organized for the cultivation of closer and more intimate relation between medical colleges and the elevation of the standard of medical education by requiring a more thorough preliminary training and an increased length of medical study.

The Association is composed of delegates from Southern Medical Colleges, whose Faculties have signified a desire to become members thereof, signed these rules of organization, and paid the membership fee of five dollars.

Each Medical College belonging thereto sends one or more delegates, and is entitled to one vote in the transactions of the Association.

The meetings of the Association are to be held at the same time and place as the meetings of the Southern Surgical and Gynecological Association, unless otherwise determined by the Association.

Every student applying for matriculation must hold a certificate as the pupil of some known reputable

physician, showing his moral character and general fitness to enter upon the study of medicine.

He must possess a diploma of graduation from some literary or scientific institution of learning, or certificate from some legally constituted High School, General Superintendent of State Education, or Superintendent of some county Board of Public Education, attesting the fact that he is possessed of at least the educational attainments required of second-grade teachers of public schools; provided, however, that if a student so applying is unable to furnish the above and foregoing evidence of literary qualifications, he may be permitted to matriculate and receive medical instruction as other students, and qualify himself in the required literary departments, and stand his required examination as specified, prior to offering himself for a second course of lectures.

The foregoing diploma or certificate of educational qualifications, attested by the dean of the medical college attended, together with a set of tickets showing that the holder has attended one full course of medical lectures, shall be essential to attendance upon a second course of lectures in any college belonging to this Association.

The branches of medical science to be included in the course of instructions include Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Theory and Practice of Medicine, Pathology, Surgery, Obstetrics and Gynecology, Hygiene, Medical Jurisprudence (Forensic Medicine), and special Laboratory work.

Candidates for graduation, in addition to the usual requirements of medical colleges, must have attended three courses of lectures of not less than six months each in three separate years; must have dissected in two courses, and attended two courses of clinical or hospital instructions; and must have attended one course in each of the special Laboratory Departments, to wit: 1. Histology and Bacteriology. 2. Chemistry. 3. Operative Surgery.

These requirements shall not apply to any student who has received a course of medical lectures prior to September 1, 1893.

Ward Classes at the Philadelphia Hospital.—It is announced by the Department of Charities and Corrections that ward classes may again be held at the Philadelphia Hospital under the following regulations:

Members of the medical board shall, with the permission of the Bureau of Charities, have the privilege of introducing classes of students of medicine, not including more than ten persons at any one time, to accompany them on their visits to the hospital and observe the clinical method thereof: provided that such visits be made at times when no general clinics are being held and at hours not set apart for meals. Not more than one class shall visit any ward in one day, and no patient shall be examined by or in the presence of a class more than once in twenty-four hours. Male classes shall not visit the Female Venereal Ward, nor be admitted to the Obstetrical Department, excepting the Operating Ward, the Nursery, and the Children's Department. Female classes shall not visit the Male Venereal Ward. Patients shall not be examined by or in the presence of any class without their consent. Obstetrical patients, other than those in the Venereal Ward, shall not be delivered outside of the Maternity Pavilion. Classes shall not be admitted to any of the wards of the Insane Department; but, with the approval of the chief Resident Physician, instruction to classes consisting of not more than twenty members may be given in a room to be designated by him.

The Journal of Pathology and Bacteriology has well supplied the need of a journal devoted to these subjects and published in the English language. The name of the editor, German Sims Woodhead, together with the names of his assistants in special departments, Adami, Martin, Ruffer, and Wood, and a long list of distinguished collaborators, was sufficient guarantee that the work would be of the highest order, from a scientific, an artistic, and a literary aspect, and the two numbers that have appeared have abundantly redeemed this guarantee. The venture is worthy of the most cordial support, as it is deserving of the most hearty approbation.

McCaskey's Clinical Studies is the name of a new publication, to be issued quarterly, and emanating from Fort Wayne, Ind. The first number is dated October, 1892. It is to be inferred that the journal is to be devoted to reports of clinical notes from the practice of Dr. G. W. McCaskey, Professor of the Theory and Practice of Medicine and Clinical Diseases of the Chest and of the Nervous System in the Fort Wayne College of Medicine.

Meetings of Medical Societies.

Philadelphia, Pathological, December 22, 8.15 P. M.

The National Association of Railway Surgeons, embracing the United States of America, the Dominion of Canada, and the Republic of Mexico, will hold its sixth annual meeting at Omaha, Neb., on the last Wednesday, Thursday and Friday of May, 1893. A general discussion will be held on "Injuries of the Cord and its Envelops Without Fracture of the Spine," to be participated in by Dr. Geo. Ross, of Richmond, Va.; Dr. Jabez N. Jackson, of Kansas City, Mo.; Dr. A. P. Grinnell, of Burlington, Vt.; Dr. B. A. Watson, of Jersey City, N. J.; Dr. George A. Baxter, of Chattanooga, Tenn.; Dr. Nicholas Senn, of Chicago, Ill.; Dr. C. H. Hughes, of St. Louis, Mo.; Dr. Samuel C. Benedict, of Athens, Ga.; Dr. Samuel S. Thorn, of Toledo, Ohio; Dr. W. B. Outten, of St. Louis, Mo.; Judge J. H. Collins, of Columbus, Ohio; Dr. F. K. Ainsworth, of Los Angeles, Cal.; Dr. George Chaffee, of Brooklyn, N. Y.

BOOKS AND PAMPHLETS RECEIVED.

Operative Treatment for the Relief of the Symptoms Associated with Chronic Plastic Inflammation of the Middle Ear. By Arthur Ames Bliss, M.D. Reprint, 1892.

Modern Materia Medica for Pharmacists, Medical Men, and Students. By H. Helbing, F.C.S. New York: Lehn & Fink, 1892.

Mechanical Support in Fracture and Dislocation of the Sixth Cervical Vertebra. By H. Augustus Wilson, M.D. Reprint, 1892.

Combined Gynecological Operations. By George M. Edebohls, A.M., M.D. Reprint, 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, DECEMBER 24, 1892. No. 26.

ORIGINAL ARTICLES.

LARGE CAVERNOUS ANGIOMA, INVOLVING THE INTEGUMENT OF AN ENTIRE AURICLE, SUCCESSFULLY TREATED BY DISSECTION, FREE RESECTION OF DISEASED TISSUE, AND LIGATION OF THE AFFERENT TRUNKS IN SITU BY A SPECIAL METHOD.

BY RUDOLPH MATAS, M.D,
CONSULTING SURGEON TO THE EYE, EAR, NOSE, AND THROAT HOSPITAL, ETC., NEW ORLEANS, LA.

AN apology is scarcely needed for the presentation of a case of cavernous angioma, involving the integument of the whole auricle. The treatment of angioma in general has been a source of worry to the surgeon from the remotest antiquity to the present day, and the therapeutic methods of election still remain a problem to be solved in individual cases. The extent and character of the lesion, especially whether limited to the superficial or the deeper tissues, or both; the region involved, and other complicating circumstances, profoundly affect the application of the fundamental principles of treatment. What is expected of the surgeon in all cases is, first, the eradication of the evil; and, second, if possible, the correction of the deformity; and any observation that will test the value of controverted methods of treatment, or that will aid in formulating a plan of attack that will realize in the end either one or both of these desiderata, is worthy of consideration.

The importance of the subject is accentuated when, as in the present instance, a tumor of this character presents itself in so conspicuous a locality as the auricle, and is allowed to ripen into the fulness of its most dangerous maturity, when life is threatened by spontaneous ulceration and hemorrhage. Under these circumstances the difficulties in the way of an ideal conservative result cannot be overestimated.

While an exhaustive discussion of the surgical treatment of cavernous angioma would be out of place in this report, a few remarks restricted to the consideration of auricular angioma may serve as a pertinent introduction to this clinical report.

The auricle at first sight would appear, on account of its isolation and semi-pedunculated attachment to the head, to be a most favorable field for the control of the vascular and other tumors that not infrequently develop in its tissues. But its abundant arterial supply from the branches of the carotid system, and the free collateral anastomoses that connect these with the subclavian artery, render the complete and *permanent* control of its arterial supply most difficult to effect. In addition to this, it should be remembered that an angioma is a neoplasm, in which the process of neo-vascular formation is progressive, and that the curative effect sometimes obtained from the ligation of the direct afferent trunks *in situ* and of the parent trunks, at a distance, is only operative in virtue of the diminished nutrition consequent upon the anemia of ligation. Even a moderate collateral supply is, therefore, competent to reëstablish the peculiar morbid histogenesis that ends in neo-vascular formations. The condition is not simply varicose, cirsoid, or aneurismal, but is neoplastic.

This understanding of the subject justifies the aggressive attitude of modern surgery that, whenever practicable, adopts as an initial procedure the total extirpation of the morbid tissue.

But the conspicuous and exposed position of the auricle, which is so important an appendix of the face, seriously interferes with the application of the more sweeping operative measures that would be unhesitatingly applied to tumors of this nature in less exposed regions. The unsightly mutilation produced by the amputation of the ear can only be permitted as an extreme measure, to be reserved almost strictly for malignant neoplasms.

In the simple and early forms of nevoid disease that usually precede the more serious and progressive erectile-tissue growths, the ordinary methods of securing tissue-destruction or "perturbation" (Broca) may be utilized with advantage and excellent cosmetic result; but when the whole auricular integument has been involved by one immense growing pulsatile tumor, in which the skeletal framework participates, then it is impossible to destroy the evil without leaving marked traces of the destructive force employed.

How to cure a generalized cavernous angioma of the auricle and still preserve this organ with some resemblance to its original normal appearance, is the question. Many believe that this result may be obtained with the aid of either thermic or electrolytic cauterization, by potential caustics, or by interstitial injections of irritants or coagulants judiciously

applied, etc.; but experience has convinced me that in the cases of angioma in which the cirsoid or arterial element dominates, no reliance can be placed upon these methods, and that nothing short of the actual extirpation of the diseased tissue itself, after securing the preliminary ligation of the afferent trunks *in situ*, can secure a permanent result. One of the most instructive lessons gathered from the present case teaches that the auricle may be divested entirely of its cutaneous covering, and the cartilage itself be considerably remodelled without causing it to suffer necrotic changes. If this can be done with comparative ease and safety, then the way to the radical, and yet conservative and cosmetic treatment of auricular angioma, is clear and satisfactory.

F. B., a German-American, aged thirty-two, applied at my office for treatment, September 11, 1890. He is a tall, thin, but healthy man, who has an excellent family history and no record of cachetic or diathetic disease. He is married and the father of three very robust children. His present disease has been a source of worry to him since childhood. His mother has no recollection of any noticeable peculiarity in his ear as an infant, but when he grew older and was sent to school, he attracted the attention of his playmates by a peculiar reddish discoloration of his right ear. This discoloration became more pronounced as he grew older; it assumed a darker hue and resembled a mother's mark. The abnormal color spread gradually over the whole ear, which grew larger and more prominent than its fellow. He suffered no serious inconvenience, however, until about five or six years before his consultation with me.

The disease appeared then to have become suddenly more active. The color deepened to a dark purplish-red and the whole skin became thickened, so that the ear grew much larger, heavier, and deformed. About this time also he began to notice that when lying with his head on his pillow at night the ear would throb and "hum" annoyingly. Any excitement or violent exertion would invariably aggravate the noise. About a week before consultation, the patient was awakened from his sleep by feeling himself bathed with blood, which, to his horror, he discovered spurting freely from a break in the cuticle of his ear. This spot had been noticed some days previously to have grown darker than the surrounding skin, and showed signs of ulceration; in fact, this threatening appearance had decided him to submit to an operative procedure at the hands of one of the local surgeons whom he had consulted, when the unexpected hemorrhage occurred, which altered his plans and brought him to my hands. He was nearly unconscious from the bleeding when a physician arrived and stopped the hemorrhage by pressure and the free application of the tincture of the perchloride of iron. In consequence of this application the ear appears to have become very much inflamed and eczematous; so much so, that, when the patient called at my office, I feared he was suffering from acute erysipelas, but a careful examination dispelled this impression.

When the affected ear was uncovered, it instantly commanded attention because of its extraordinary appearance. Its elephantine size, dusky bluish color, and visible pulsation made it remarkable. The normal left ear, from the tip of the helix to the extremity of the lobule, measured barely 2¼ inches in length, and from the outer margin of the helix to the base of the tragus, 1½ inches in breadth. On the other hand, the abnormal ear measured 3½ inches in length, nearly 3 inches in breadth, and over 1 inch in thickness. The outline of the auricle was lost in many places, owing to the redundancy of the soft parts, which simulated the hypertrophy of elephantiasis; the color was dusky blue and purplish-red in places, and on the spot where the hemorrhage had taken place, corresponding to the anti-helix just above the concha, there was a black, superficial slough, surrounded by a red inflamed area. The whole ear pulsated visibly with the heart-beat, so that the pulse could be counted by looking at the ear. By palpation, a diffused pulsation and thrill could be detected over the whole ear, but the distinct throbbing of the larger afferent trunks could be felt in the upper and anterior portion near the tragus, corresponding to the situation of the anterior auricular branch of the temporalis, and posteriorly behind the concha, where the posterior auricular branches of the occipitalis enter the pinna.

A distinct plexus of veins could also be detected and compressed as a soft mass lying in the zygomatic region, in front of the tragus and helix. It was also ascertained that the whole cartilage of the auricle had been much hypertrophied, though the outline of the chondral skeleton had been preserved.

Pressure upon the common carotid immediately arrested all pulsation, diminished the color, and reduced the size of the ear.

In view of this evidence, the diagnosis of cavernous angioma was established.

The danger of secondary hemorrhage and the advanced stage of the disease also decided me to adopt the ligation of the external carotid as the initial treatment.

Two days after, the patient was removed to the Touro Infirmary, where, after careful antiseptic preparation, the external carotid was exposed and ligated.[1] The control of the circulation of the ear by the external carotid was demonstrated before tying the knot. At the same time an incision was made in the pretragus, where a large venous plexus was exposed, and ligated in three places. Fine, twisted, sterilized silk ligatures were used for the arteries and veins. The wounds healed entirely *per primam* and without any complication.

In ten days the patient returned home. All the humming had ceased; the ear grew smaller, paler, and all pulsation was entirely arrested.

The patient resumed his regular avocation (local solicitor for a brewing company), but was instructed to call at regular intervals for examination.

[1] Drs. P. E. Michinard and W. Schuppert and members of the resident staff assisted me in this operation.

For a period of over three months the patient enjoyed a total freedom from pulsation, and the ear appeared to diminish in size, but at the end of this time his vigilance was unhappily rewarded by the discovery of a slight pulsation in the fossa of the antihelix. Fifteen days after, this pulsation was decided and unmistakable; in a month, pulsation was also recognizable in the posterior surface of the concha.

I concluded from this that a collateral circuit had been established, 1st, through the temporal and facial branches of the opposite side; and, 2d, through the anastomoses of the profunda cervicis of the superior intercostal of the subclavian with the princeps cervicis of the occipital. The return of pulsation was decidedly ominous, and I decided to interfere vigorously *in loco* before allowing the circulation to resume its primitive vigor.

It was evident that the ligation of the opposite external carotid would be useless, as it could not affect the abundant supply from the right subclavian, the ligation of which would have been required to absolutely control the collateral supply. As the amputation of the ear always remained a last resort, the risk of so heroic a procedure as the ligature of the first portion of the subclavian was, of course, not to be entertained.

The problem to solve was to save the ear and yet arrest the progress of the disease. The use of local coagulants naturally suggested itself, and the safety of electrolysis recommended this eminently conservative procedure as a method of election. But the total failure of this method, after a careful and persistent trial, in a recent case of venous nevus of the cheek, followed by a brilliant and immediate cure by the injection of carbolic acid solution, decided me in favor of the latter agent. The aim here was not so much to coagulate the blood in the tumor, but to excite an aseptic inflammation in the peri-vascular and cavernous spaces of the angioma with the hope of compressing the afferent vessels with peri-arterial exudations and retractile tissue-proliferations, and of filling the areolæ with similar products of inflammatory action. By using strong dilutions of carbolic acid this object had been successfully obtained in large venous nevi of the face in the practice of Professor Souchon, of this city, and in several small capillary nevi, in children, in my own *clientèle*. The large, passive clots, which are so favorable to embolism, and which result from the injection of the iron salts, are not observed when dilute carbolic acid solutions are used in interstitial injections, and it is largely due to this fact, no doubt, that the practice which is so general in this country, in the hands of the most irresponsible class of practitioners, of injecting hemorrhoids with carbolic acid, is so rarely followed by disastrous consequences. At any rate, I began to inject the angioma in question with from 10 to 20 minims of solution thrown into the center of the foci of greatest pulsation. At first solutions of 20 per cent. in water, with 2 per cent. cocaine hydrochlorate, were tried tentatively; then these were increased to 30, 40, and 50 per cent. carbolic acid. After each injection, even of the weaker solutions, the pulsation in the area injected was very much diminished, but after the immediate effects of the injection had passed away, the pulsation returned, although not so vigorously. Two or three foci were injected at a time. The patient was thus treated at first every week, and then every two weeks. Beyond a stinging pain, no unpleasant accidents followed these injections, except on one occasion, when the almost pure acid was injected in a particularly rebellious spot over the antihelix. Here a small slough followed, but it was detached without any bleeding or other serious consequences.

So much control over the growth was obtained by this mode of treatment, that the patient thought himself well, and did not return for several months.

In March, 1892, he returned, however, complaining that the subjective pulsation and humming at night were returning. The ear was more tumefied, and approaching its earlier ugly appearance, and the pulsation had, indeed, returned. I was now seriously contemplating the advisability of amputating the auricle, when I thought of a method of temporarily controlling the circulation of the pinna that had the double advantage of securing complete local hemostasis as well as anesthesia, and that would allow of a direct attack upon the morbid tissues, and permit the ligation of the afferent trunks *in situ*.

The patient was averse to any extended or adventurous operation, and rather inclined toward an amputation of the ear. The suggestion of a bloodless operation under cocaine anesthesia reassured him, and he consented. Of course, prolonged local anesthesia, with cocaine, could not be thought of without the aid of elastic constriction. This was secured in the following manner:

The hair was cut short and shaved for a considerable area around the ear, and the skin thoroughly prepared by washing with soft soap, alcohol, and bichloride solution.[1] Four punctures were made at approximately equidistant points in front, above, below, and behind the ear, through which a continuous circle or atmosphere of cocaine (4 per cent.) solution was created in the peri-auricular tissues. Four ordinary strong pins were then made to transfix the tissues at approximately equidistant points in the cocainized area; then a long, elastic thread was wound around each pin successively, and made to compress the root of the auricle very thoroughly. The pins thus served as binding-posts, and effectually prevented the ligature from slipping. After winding the constrictor several times around the ear, the pulsations in the tumor were entirely arrested; the skin, however, presented a cyanosed appearance.

An incision down to the cartilage of the ear was now made along the convex margin of the helix from its upper extremity to the lobule. The anesthesia was complete. With this incision a considerable gush of dark venous blood took place, and the

[1] This operation was performed at Eye, Ear, Nose, and Throat Hospital of this city, where every assistance was rendered by Dr. A. W. de Roaldes, surgeon-in-charge, and the painstaking members of the resident staff.

turgid, erectile swelling collapsed. This hemorrhage was due only to the escape of the blood actually retained in the cavernous spaces; after the first gush the hemostasis was absolute. I then proceeded with the dissection of the skin, by which the whole cartilaginous skeleton of the pinna was exposed clearly to its perichondrium. A posterior flap, consisting of the whole skin covering the posterior surface of the auricle, and one anterior to the tragus, readily denuded the whole chondral framework. A careful search was now made for all recognizable afferent arteries at the points where previous observation had shown that the supplying vessels entered. These visible vessels were now surprisingly *few*, and were all held by four artery-forceps, and were ligated with finest silk. In the meantime, the thinness of the collapsed angiomatous skin, and the shrinking of the whole ear were truly astonishing to those who had seen its quasi-elephantine proportions just before the arrest of the circulation by the constrictor. It was evident from the dissection that there was very little subcutaneous tissue, indeed, and that the cavernous spaces now collapsed were lodged in the true skin, which was *entirely* involved in the angiectatic process. It also became evident from this that a *radical* removal of the diseased tissue could only be accomplished by the total excision of the tegumentary covering of the auricle. Such a procedure would have left a naked cartilaginous skeleton without any protecting skin-covering unless this was secured by grafting.

FIG. 1.[1]

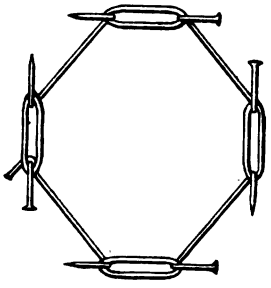
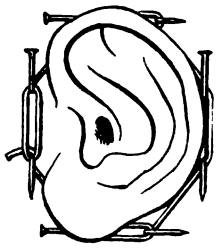


FIG. 2.



Without a precedent to guide me under the circumstances, I hesitated to remove the angiomatous skin-flaps in their entirety for fear of chondral necrosis, and I decided simply to resect as much as possible of the redundant skin, of which there was certainly a great abundance. I also trimmed the whole outer margin of the hypertrophied cartilage, removing a strip corresponding to the whole length of the helix, and a large elliptical section of the much enlarged concha. This procedure reduced the skeleton of the auricle to the size of its normal fellow, and, furthermore, greatly dimished its unsightly and outstanding prominence. Having thus diminished the skeletal framework by at least one-half, it was also easy for me to excise over one-half of the superfluous skin that originally covered it, thereby removing a great portion of the diseased tissue.

The operation was conducted thus far without pain or loss of blood, as the anesthesia and hemostasis were perfect, thanks to the elastic constrictor.

The field was now carefully scanned for recognizable vessels, and a few additional ligatures applied at points where suspicious structures existed at the root of the auricle. Finally, to assure the control of all the afferent vessels, the elastic constrictor was removed. It was well that I did so, for no sooner was the elastic tension relieved than the thin, pale, and shortened flaps of skin became turgid and discolored, and numerous jets of blood instantly spurted in all directions from the stumps of the short skin-flaps, and immediately flooded the field of operation. The prompt application of a handful of dry sterilized gauze held over the bleeding flaps, firmly pressed with the palm of the hand, controlled the hemorrhage and allowed a more deliberate inspection and gradual exposure of the bleeding-points. Fully ten forceps were at one time engaged in securing the bleeding-points, but owing to the promptness with which they were applied a final and complete hemostasis was secured, though only after much expenditure of time, during which the courage and endurance of the patient were being severely tried. There was no real physical pain, the anesthesia being maintained throughout in spite of the removal of the elastic constriction, but it was the mental distress which the possession of full consciousness and the appreciation of the proceedings caused the patient.

After the torsion of some and the ligation of the majority of the bleeding-points the skin was readjusted over the cartilaginous auricle and the wound closed by sutures, and a typical dry aseptic dressing applied. Apart from the nervous tension, which almost threw the patient into a fit of hysterics, there was no remarkable immediate sequel to the operation. On the third day the patient was able to leave the hospital (March, 1892) and drive home. Here, however, he did not do so well. A week had elapsed, and the wound was healing rapidly, when an attack of erysipelas (due to contamination from exposure of the wound) was inaugurated in the operated ear, and prostrated the patient. The erysipelas assumed the ambulating type, and for four weeks the disease travelled all over his body, beginning in the head and only ending when it had reached the toes. The fever, delirium, and general exhaustion consequent upon this disastrous complication nearly killed the patient, but he finally rallied and recovered, and is at present in excellent health.

[1] These cuts are intended to give a schematic representation of the author's method of elastic constriction with the aid of pins to secure local anesthesia and hemostasis in operations on the auricle. In total amputation of the auricle, this method is unreliable because of the lack of cartilaginous support. The cocaine is injected first in the spots subsequently occupied by the pins. An atmosphere of cocaine solution is thus made to diffuse itself around the root of the auricle. The constricting elastic thread is then wound around the pins several times in the manner shown in Fig. 1. Fig. 2 shows the pins and constrictor in relation to the auricle. The posterior pin should be nearer the concha than is shown in the diagram. As the elastic thread is wound around the root of the pinna, the ear becomes markedly pedunculated, and its outline more contracted and circular, the lobule being thrown up toward the helix. In all minor operations on the ears this method can be very easily and satisfactorily applied.

Present condition of the ear. Notwithstanding the liberal pruning of the hypertrophied cartilage, and large resection of the angiomatous skin, the ear is still larger than its fellow. The partial excision of the helix is now noticeable because the outline of the cartilage is not hidden by the mass of redundant and turgescent integument that first covered it. The color of the ear is its most disfiguring characteristic. It is of a dusky bluish-red, but thin and adherent to the underlying cartilage; a slight varix stands in relief on the anterior border of the helix; posteriorly, the skin is in some places puffy, thick, and compressible, showing the persistence of erectile tissue. But the great difference that is at once perceived between the present and past condition, is the total absence of all diffused or localized pulsation. The last operation was performed in March, 1892, and since that time (eight months) the auricle has remained the same in size and appearance and freedom from pulsation. The patient attends to his usual work, and considers himself well. This long period of quiescence encourages me to believe that the disease has been finally controlled, and will not recur.

In reviewing the history of this case the salient features that are most noticeable are:

1. The sudden transformation of an innocent nevoid spot into a voluminous and rapidly growing angioma.

2. The extent of the disease, which involved the entire tegumentary covering of the auricle.

3. The preponderance of arteriectasis in the morbid tissues.

4. The participation of the entire thickness of the skin in the angiomatous process.

5. The hypertrophy of the cartilage from hypernutrition.

The therapeutic lessons to be derived from the study of the case are:

1. The advantage of early and radical interference in all nevoid diseases, before the advent of the later and more formidable erectile-tissue stage.

2. The danger of ulceration and hemorrhage from neglecting advanced cavernous angiomata, an urgent condition that interferes with the choice of therapeutic methods when ulceration has been established.

3. The inability of ligature of the external carotid to control permanently the circulation of the auricle, on account of the early reëstablishment of the collateral circulation through the opposite carotid and corresponding subclavian branches.

4. The inability of interstitial or parenchymatous injections of carbolic acid to control extensive cavernous angiomata in which the arterial preponderates over the venous ectasis.

5. The facility with which prolonged local anesthesia with cocaine and hemostasis of the auricle may be obtained by means of elastic constriction, applied by the method adopted in this case.

6. The possibility of permanently arresting the progress of advanced cavernous angiomata of the auricle by ligating the afferent arteries *in situ*, provided this be done deliberately under the prophylactic hemostasis of elastic constriction.

7. In all cases of cutaneous angioma, as in the present instance, in which the skin is diseased throughout, it is utterly impossible to restore the parts to their normal appearance without complete excision. The progress of the disease may be arrested, but the cosmetic result will remain poor.

8. The entire cartilaginous framework of the auricle may be bared of all tegumentary covering and fully resected without seriously compromising its vitality, provided the connections of the concha with the temporal auditory cartilage are maintained.

Finally, profiting by the light of present experience, if called again to operate on this or a similar case, I would proceed as follows:

1. Ligate the external carotid on the corresponding side.

2. After waiting for the wound of ligation to heal, and before the collateral circulation is reëstablished, anesthetize the patient and control the circulation of the ear by the method previously described, and resect the whole angiomatous skin, leaving only those areas in which the normal tissues remain. If necessary, remove the whole cutaneous envelop of the auricle, and cover the raw surface immediately with Thiersch grafts.

3. Before applying grafts ligate all afferent trunks in the auricular skin-stumps, before and after renewing the elastic constrictor.

4. Dress the wound with a typical aseptic dressing. The advantages of such a procedure are obvious. Not only would the diseased area be radically removed, and thus the possibility of recurrence eliminated, but the cosmetic result would be much more satisfactory.

THE AMEBA COLI: ITS IMPORTANCE IN DIAGNOSIS AND PROGNOSIS. WITH THE REPORT OF TWO CASES.[1]

BY WILLIAM T. HOWARD, JR., M.D.,
LECTURER ON PATHOLOGY AND INSTRUCTOR IN CLINICAL MEDICINE IN THE BALTIMORE MEDICAL COLLEGE; VISITING PHYSICIAN AND PATHOLOGIST TO THE MARYLAND GENERAL HOSPITAL; VISITING PHYSICIAN TO ST. JOSEPH'S HOSPITAL.

SINCE the first observation, by Osler,[2] in this country of the ameba coli in the pus of an hepatic abscess, occurring in a man with chronic dysentery, it has been found by several observers in the stools of patients with both acute and chronic dysentery and in the pus of liver-abscesses complicating the disease.

[1] Read at the Semi-annual Meeting of the Medical and Chirurgical Faculty of Maryland, at Easton, November 15, 1892.

[2] Osler: Johns Hopkins Hospital Bulletin, vol. i, No. 5, 1890.

That the form of dysentery associated with the presence of this organism is frequent in this country is proved by the numerous cases that have been reported from widely-separated localities: the cases of Dock,[1] in Texas; those of Stengel,[2] in Philadelphia; those of Councilman and Lafleur,[3] in Baltimore, and the case of Eichberg,[4] in Cincinnati.

The admirable contribution to our knowledge of the relation of the ameba coli to a certain distinct form of dysentery and its complications, recently made by Councilman and Lafleur, has shed much light upon the diagnosis and prognosis of the disease, as well as upon its etiology and pathologic anatomy. Their work has given added interest and importance to the recognition and study of this disease.

The first case of dysentery in which amebæ coli were found and their presence thought to hold a causal relation to the disease was that of Lösch, quoted by Councilman and Lafleur. Lösch gave a good description both of the lesions and of the organisms. Koch and others, quoted by Councilman and Lafleur, found them in intestinal ulcers and in liver-abscesses occurring in patients with dysentery. Kartulis has studied the ameba coli in the same lesions in the dysentery of Egypt. This observer has made important contributions to the literature of the subject, and has given clear descriptions of the organism. Councilman and Lafleur, however, were the first to work out in an exhaustive manner the lesions of the dysentery associated with the ameba coli from the clinical, etiologic, and anatomic standpoints. These observers studied, clinically and anatomically, fifteen cases of the disease under consideration in the Johns Hopkins Hospital and in Baltimore, and have shown that the affection is identical with the so-called tropical dysentery. Their description of the organism agrees with those of Lösch, Kartulis, and Osler.

The shape of the ameba coli when inactive is round or oblong, but when active it is of irregular outline. In size it varies from ten to twenty micromillimeters in diameter. It has an ectosarc and an endosarc, more clearly seen in the active forms. In the resting state the amebæ are more highly refractive. The ectosarc is composed of a pale, homogeneous, hyaline substance; the endosarc is refractive, and contains vacuoles of varying size.

In some a more or less definite nucleus can be made out. Amebæ coli present two varieties of motion, a progressive motion, by which they change their place, and another motion consisting in the putting out and retracting of pseudopodia. The latter is the more frequent and characteristic motion. The activity and frequency of these movements vary greatly, and are influenced by a variety of conditions. They are most active at the body-temperature, and become slower and cease when the organisms are exposed to heat or cold, and various chemical agents. These pseudopodia are always rounded or blunt at the end; they vary much in size, and may form long, straight, or irregular projections. An ameba may change its position by putting forth a large pseudopodium into which its contents rapidly pour.

These amebæ often contain various foreign bodies, such as red blood-corpuscles, pus-cells, the nuclei of cells, and bacteria. These elements lie usually in the center of the organism.

Councilman and Lafleur succeeded in staining the amebæ coli with various dyes, both after drying them on cover-slips and after hardening them in the tissues in different preserving fluids. Very good results were obtained after hardening in alcohol, and staining in methylene-blue. The central portion stains irregularly, and numerous fine granules, not unlike micrococci, are seen.

The following two cases show the practical diagnostic and prognostic importance of searching for and finding the amebæ coli in the stools and in the expectoration:

CASE I.—A. P., a Russian Pole, twenty-eight years of age, married, was admitted to our service at St. Joseph's Hospital, April 12, 1892, complaining of weakness and frequent stools, accompanied by tenesmus and abdominal pain. His family history was negative. He had always been healthy, except for an attack of malarial fever several years ago. His present illness began three weeks ago while at work at Sparrow's Point, Md. After a hard day's work he drank a great deal of ice-water, and the next day was attacked with severe abdominal cramps and a profuse diarrhea. He left Sparrow's Point after a few days, and went to Curtis Bay, Md. There he improved for a time, but eight days later he was again attacked with abdominal cramps and a copious diarrhea. A great deal of pain accompanied the stools, which numbered about fifteen in the twenty-four hours, were blood-stained, and at times contained shreds of "membrane." On admission the following note was made: His frame large, body emaciated, skin sallow, expression anxious, and he looks ill. The lips are pale, the tongue moist, and covered with a heavy white fur. The temperature is 100°, pulse 80, of fair volume; the respirations are 24, unembarrassed. The chest is well formed, the costal angle broad, expansion equal. The percussion-note is hyper-resonant posteriorly. On both sides, on auscultation, there are sonorous and sibilant râles, and prolonged expiration. These sounds are best

[1] Dock: Texas Medical Journal, April, 1891.

[2] Stengel: Medical News, November 15, 1890.

[3] Councilman and Lafleur: Johns Hopkins Hospital Reports, vol. ii, 1891.

[4] Eichberg: Medical News, August 22, 1891.

marked posteriorly. Cardiac dulness begins at the fourth rib. The apex-beat is in the fifth intercostal space, in the nipple line. The heart-sounds are heard over a large area at the apex; they are moderately loud, and are clear at both apex and base. The liver-dulness begins at the sixth rib in the mammary line, and extends to a distance of 1 cm. below the costal margin. The liver-dulness is not apparently increased behind. The lower border is palpable. The spleen is negative. The abdomen is flat and retracted. It is resonant everywhere. There is distinct tenderness to pressure along the line of the descending colon and at the hepatic flexure of the colon. There is distinct tenderness to pressure along the line of the descending colon and at the hepatic flexure of the colon. There is no mass felt anywhere.

On April 14th: The patient had had twenty stools since the preceding day. There was profuse sweating of the forehead, head, face and back. Temperature 100°, pulse 108, and slightly dicrotic, the respirations 28, natural. The patient appeared to suffer no special pain. Just below the liver-margin there was slight tenderness on pressure. There was some tenderness on pressure in the right iliac fossa, where there was also also resonance over a small area. The abdominal wall was somewhat resistant here. There was no special tenderness over McBurney's point. Just above Poupart's ligament there was a small area, where, on deep percussion, a loud resonant tympany was elicited.

The appearance of the stools was suggestive of amebic dysentery. The stools were copious, and had a very offensive odor. They were quite fluid, and in general of a grayish color, with brownish-red streaks of blood-stained material and yellowish-gray necrotic looking masses, and also other grayish gelatinous-looking masses.

On microscopic examination of a fresh stool there were seen numerous red blood-corpuscles, leukocytes, and large oval epithelioid cells in great numbers. There were also cylindrical epithelial cells to be seen. There were numerous bacteria, a few elastic fibers, and a great deal of granular detritus. Numerous actively moving amebæ, of the size and appearance of the amebæ coli, were observed. These amebæ were generally in quite active motion, sending out large pseudopodia with great frequency. The central portion of the amebæ was very refractive, and filled with granular detritus. The material in the pseudopodia was of a steel-gray color, and hyaline and translucent. The amebæ seen contained one or several vacuoles. Examination of the urine was negative.

On April 15th the general condition was about the same. The stools were unchanged in number and in general character. There was tenderness on pressure over the whole abdomen, not limited to the line of the colon. Over the region of the cecum and in the whole of the iliac region there was marked tenderness on deep pressure. The Skodaic tympany noticed on the 12th instant had disappeared. The liver-area was not further increased, the spleen negative. He had several times vomited a watery, mild colored fluid during the day.

On April 20th the condition of the patient had grown steadily worse. For the last three days he had vomited at frequent intervals. The stools varied from twenty to thirty in the twenty-four hours. The temperature was 99°, the pulse 120, very weak. The surface of the skin was covered with a cold, clammy sweat, the eyes were sunken, the tongue moist and clean, the lips blue. There was some cough, but no expectoration. The patient had a very peculiar putrefactive odor. The belly was flat and retracted; there was no pain on pressure, and no dulness. The liver dulness had not further increased.

The patient died April 21st. An autopsy was not allowed.

This case was apparently a hopeless one on admission to the hospital. It is undoubtedly to be classed with those of the gangrenous variety of this form of dysentery. From the epigastric pain and the hepatic enlargement present, it is not improbable that there was abscess of the liver. As an autopsy was not allowed, it is to be regretted that the liver was not explored with the aspirating needle after death.

CASE II occurred in the service of Professor S. K. Merrick, at the Maryland General Hospital during June, 1892. The patient had been under the care of Dr. Charles H. Rose, of Cordova, Md., who has kindly furnished us the following facts concerning his previous history and an account of the patient while under his observation:

J. W. W., twenty-seven years of age, single, of a nervous temperament, and sedentary habits. The family history is good. The patient is a telegraph-operator, and smokes cigarettes to excess; he weighs, in health, about 120 pounds. He has suffered with chronic constipation for some years. Except for this he always had good health until the winter of 1891, when he had blood-poisoning, following a blow in the face, received while living at Hadley, Delaware. From this he fully recovered; but two months later he was again under Dr. Rose's care with a severe attack of influenza, which was followed by acute rheumatism. He was not able to return to work till October, 1891. In February, 1892, he was again seen by Dr. Rose, and was then complaining of constipation, general malaise, and irregular fever. There was loss of appetite, a yellow tint to the conjunctiva, and emaciation. He gradually became worse, and during May had chills, followed by high fever and profuse sweating. For some time there had been a troublesome cough, accompanied by copious expectoration.

The following is furnished me by Professor Merrick: On admission to the hospital the patient was emaciated, the skin of a sallow hue; there was a harassing cough, with copious expectoration. The morning temperature was 100° F., the evening temperature 103°, followed by very profuse night-sweats. The pulse was 110, the respirations 28. The ribs were prominent, the expansion good, except at the right base posteriorly. There was a localized bulging of the chest on the right side posteriorly, extending from the inferior angle of the scapula to the extreme base, and from 5 cm.

to the right of the spine to a point 2 cm. outside the posterior axillary line. Mensuration showed this side of the chest to be 15 mm. larger than the left side. Over this area there was absolute percussion-dulness, approaching flatness. The lungs were clear to percussion elsewhere. On auscultation over the area of dulness the vesicular murmur was either distant or absent. Tactile and vocal fremitus were lost here. Both lungs were clear elsewhere. These signs, together with the copious expectoration of a thick, glairy muco-purulent sputum, were thought to indicate the presence of an empyema that had broken into a bronchus. The introduction of a moderate-sized aspirating needle was not followed by the flow of any fluid. The liver-dulness was not increased anteriorly, and air entered the lung from apex to base in front. The lower border of the liver was not palpable. The spleen and abdomen were negative.

Thinking that the process was probably tuberculous, Professor Merrick sent us a specimen of the sputum for microscopic examination.

Before examining the sputum we knew nothing of the history of the case or of the physical signs present. The specimen when examined was twenty-four hours old. In general appearance the sputum was somewhat frothy, of a grayish color, and contained numerous grayish nummular lumps. There were no reddish streaks or other sign of hemorrhage. Cover-slip preparations were made, and after drying, stained in the usual way with carbol-fuchsin, and decolorized with a solution of sulphuric acid containing methylene-blue, thus counterstaining the nuclei. After careful examination of six preparations no tubercle-bacilli were found.

But at first glance my attention was drawn to a great number of very large cells present. These cells were considerably larger than the ordinary alveolar epithelial cells so often seen in the sputum. Some of these cells appeared to contain irregular and degenerated nuclei. There were also large numbers of pus-cells and a considerable number of what appeared to be alveolar epithelial cells. In order the better to study the large cells referred to, unstained cover-slip preparations of the sputum were made. In these there appeared large numbers of these cells. In size they varied from three to five times the size of an ordinary leukocyte, and were in general round or oval in outline; some were irregular in shape.

Their appearance was usually homogeneous and colorless, sometimes finely granular. Some contained fine granular detritus and fine fat-globules; and a few appeared to contain degenerated nuclei, suggestive of the nuclei of pus-cells. In some there were bacteria; no definite nucleus was made out. These bodies differed from the alveolar epithelial cells present in that the latter were smaller and had the typical nuclei. The large cells described were not seen to move. Nevertheless, we were convinced that they could be nothing else than amebæ. As the specimen was twenty-four hours old, the fact that the bodies did not move did not militate against the idea of their being amebæ.

We obtained from the hospital a freshly expectorated specimen of sputum. Unstained cover-slip preparations of this showed large numbers of actively moving amebæ, some being very much more active than others. They were very much more numerous than the other cells present, there being three or four in a single field. They varied much in shape; some being round, some oval or oblong, and still others, especially the actively moving forms, very irregular in outline. There were many in active motion, sending out pseudopodia with great frequency and rapidity, causing such a rapid change of shape that it was impossible to draw them. The central portion of the amebæ contained vacuoles, finely granular material, and often fine fat drops and bacteria, and in some there were the nuclei of leukocytes. The pseudopodia presented a homogeneous, translucent, steel-gray appearance. A more or less well-marked endosarc and ectosarc could be made out. The sputum also contained many pus-cells, numerous alveolar epithelial cells, and some elastic tissue fibers. No liver-cells were recognized in the specimens examined.

Although we had no knowlege of the history of the case or of the physical signs present, we felt warranted in stating in our report to Dr. Merrick that the patient had an amebic abscess of the lung, and in suggesting that it was probably a hepato-pulmonary abscess. Professor Merrick invited us to see the case with him the next day, and after going over it carefully we agreed that there was no doubt but that the patient had a hepato-pulmonary abscess associated with the presence of the ameba coli.

Careful questioning of the patient brought out the fact that some time previously he had had an attack of dysentery from which recovery was slow, but that for the last six months his stools had been normal. He also stated that in March last, after a severe attack of coughing and dyspnea, he coughed up over a quart of thick creamy pus. During the whole time of his stay in the hospital his stools were well formed, normal in appearance and free from mucus and blood.

The patient was also seen by Professor Robert W. Johnson, who advised against operation. Quite a large aspirating needle was afterward introduced into the dull area, but no fluid escaped through it. The lumen of the needle, however, contained a single drop of thick, creamy, gelatinous-looking pus, which on microscopic examination showed numerous actively moving amebæ. The patient was in the hospital under observation for one month, when he returned home, where he died in the middle of August last. An autopsy was not allowed.

Councilman and Lafleur[1] divide cases of amebic dysentery into three clinical groups: (1) dysentery of moderate intensity; (2) grave or gangrenous dysentery; and (3) chronic dysentery.

According to them, cases of the first variety show muscular weakness, pallor, indifferent decubitus,

[1] Loc cit., p. 453.

dull expression of the face, dryness and inelasticity of the skin, and a pale and flabby tongue. The temperature is often normal, not usually going above 100° F.; the pulse ranges from 70 to 90 per minute; and the respirations from 18 to 30. The appetite is impaired and the sleep is disturbed by more or less frequent stools.

In the grave or gangrenous variety they state that the face is drawn, slightly cyanosed or flushed, the expression anxious, and the mind usually clear. There is complete anorexia and intense thirst, the abdomen is greatly retracted, and there may be profuse sweating. The temperature is frequently normal or even subnormal, the pulse is rapid, the respirations accelerated. In the chronic form there is progressive anemia and marked loss of flesh.

The diarrhea is the principal symptom of the disease, and it is subject to great variations in character and frequency. Councilman and Lafleur[1] call particular attention to the irregular intermissions and exacerbations to which it is subject. As pointed out by them, the exacerbations may occur at any period of the disease, and may come and go suddenly, lasting from a day to a week or ten days. They lay especial stress upon the intermissions, which may last from a day to three weeks or longer, during which time the feces are soft or even well formed, but usually have mucus adherent to them; and they draw attention to the fact that these exacerbations and intermissions are most marked in cases complicated by abscess of the liver.

The stools vary in number and amount within wide limits. In our first case there were as many as thirty in twenty-four hours; but this is unusual. The amebæ are found, however, in the stools in all three forms of the disease. As was first shown by Lafleur,[2] they are most numerous in the small gelatinous masses in the stools. The appearances described in Case I may be taken as a type of the characters usually met with in this form of dysentery. As is shown in this case, the stools contain, on microscopic examination, besides the amebæ, red blood-corpuscles, pus-cells, columnar epithelial cells, bacteria of various kinds, elastic tissue, and even unstriped muscle-tissue, granular detritus, and undigested food; there are also large oval epithelioid cells which may be mistaken for amebæ.

The character of the sputum in these cases has been sufficiently dwelt upon in the report of our second case.

The stools of patients suffering with dysentery or diarrhea should be examined, especially in hospitals, as routine practice. Councilman and Lafleur failed to find the ameba coli in the stools of patients with catarrhal and diphtheritic dysentery, and from their observations it would seem that these organisms are found in the stools only in the ulcerative or so-called tropical dysentery. A matter, however, of great importance is the question of what proportion the frequency of the occurrence of this last form of dysentery bears to that of the other two.

This can be determined only by the examination of the stools of a large number of patients with these several forms of dysentery. No one, however large his experience, can be certain that a given case of dysentery is due to the ameba coli until microscopic examination of the stools is made.

The clinical value of the differentiation of this form of dysentery from the other forms lies of course in the important bearing that this has upon the questions of diagnosis and treatment. For this reason, particularly in cases of chronic diarrhea, especially if it is of a remittent character, a careful study of the stools is important. It is in these that mistakes are most likely to be made. As this disease, whether acute or chronic, is a grave affection, and as the complications and the final outcome in a given case cannot be foreseen, it is necessarily a more serious disorder than the other forms of dysentery. Experience has shown that the chronic variety is more likely to be followed by complications than the acute.

The most important and the most fatal complication is the formation of liver-abscesses, which, when situated on or near the upper surface of the right lobe—and this is a favorite seat—often perforate the diaphragm and involve the lower lobe of the right lung. In this event there is a hepato-pulmonary abscess. Pus from this is usually sooner or later discharged through a bronchus. Liver-abscess occurred in eight out of the fifteen cases reported by Councilman and Lafleur,[1] and in four of these there was subsequent involvement of the lower lobe of the right lung. Of these fifteen cases, ten were acute, and of these acute cases three were complicated by liver-abscess. In all five of the chronic cases there was liver-abscess, and in four of these the lower lobe of the right lung was involved. In only one of the acute cases did this occur.

Stengel[2] reports four acute cases, and in none of these was there liver-abscess. Eichberg[3] reported one case of the chronic form with hepato-pulmonary abscess, followed by death after operation. The ten cases reported by Dock we have not had access to. Our second case, without doubt, had hepato-pulmonary abscess; in our first case it is uncertain whether or not the liver was involved. At any rate, it is a striking fact that, including our own cases, of the seventeen cases reported from Balti-

[1] Loc. cit., pp. 456-7.
[2] Lafleur: Johns Hopkins Hospital Bulletin, vol. i, 1890.

[1] Loc. cit., p. 490. [2] Loc. cit. [3] Loc. cit.

more nine had liver-abscess, and of these last there were five cases of hepato-pulmonary abscess.

In a case of dysentery in which the ameba coli has been found in the stools, whether the process is acute or chronic, one is, of course, on the look-out for involvement of the liver, and this is early suspected if not definitely recognized. But given a case of localized dulness at the base of the right lung, either in front or behind, with loss or absence of the vesicular murmur, with or without discoverable enlargement of the liver, and with the presence of copious muco-purulent and slightly blood-tinged expectoration, careful inquiry should be made to find out if there is not a history of diarrhea. The microscopic examination of the sputum in such a case will settle the diagnosis.

The prognosis of these cases is, of course, grave. Of the six American cases of hepato-pulmonary abscess proved to be of amebic origin that we have referred to, five died while under observation and one (Councilman and Lafleur, Case IX) recovered.

A diminution in the number of amebæ present in the discharges, or their total disappearance, is usually to be taken as a good omen. The same is to be said of finding dead amebæ in discharges that have previously contained only the actively moving forms.

An interesting and suggestive observation has lately been made in this connection by Flexner,[1] who found active amebæ not to be distinguished morphologically from the ameba coli in the pus of a cervical abscess following necrosis of the lower maxilla.

Discharges suspected of containing amebæ coli, whether from the bowel or from lung or liver abscesses, should be received in a covered receptacle, preferably warmed, put in a warm place and examined as soon as possible. It should be remembered that exposure to cold renders the movements of the amebæ sluggish or causes them to cease altogether. Often careful warming of the slide over the Bunsen flame will cause sluggishly-moving or even motionless amebæ to show active motility. This procedure is often of great assistance in doubtful cases. For detailed study of the organisms the warm stage should be used.

In doubtful cases of liver-abscess or lung-abscess it is usually justifiable to explore with the aspirating needle. As the pus in these abscesses is often too thick and tenacious to flow through the needle, even when strong pressure is used, the lumen of the sharp end of the needle should always be carefully examined. In this way, even when pus fails to flow through the needle, enough may be obtained to demonstrate the presence of amebæ, and thus a positive diagnosis can be made.

[1] Flexner: Johns Hopkins Hospital Bulletin, vol. iii, No. 25, 1892.

GENITAL TUBERCULOSIS IN WOMEN: A CONSIDERATION OF ITS FREQUENCY AND CLINICAL HISTORY.[1]

BY J. WHITRIDGE WILLIAMS M.D.,
ASSISTANT IN GYNECOLOGY, JOHNS HOPKINS HOSPITAL; PATHOLOGIST TO THE HOSPITAL FOR THE WOMEN OF MARYLAND; FELLOW OF THE AMERICAN GYNECOLOGICAL SOCIETY, ETC.

IT has long been known that the male generative organs are not infrequently the seat of tuberculosis, and a considerable amount of practical importance has been attached to the affection. On the other hand, it is only within a comparatively recent period—since the more general performance of celiotomy—that attention has been directed toward similar affections in the female, and even now such cases are generally regarded as pathologic curiosities.

In the present article I shall endeavor to show that tuberculosis of the female generative organs is of far more frequent occurrence than is generally supposed, and that it is an affection of practical importance, and deserves to be classed among the affections with which we are all liable to meet.

Ever since the time of Morgagni it has been known that the generative organs of tuberculous women occasionally present signs of marked tuberculosis, and the appearance of caseous endometritis and caseous pus-tubes is not unfamiliar to those who have witnessed a considerable number of autopsies on tuberculous patients.

It is generally stated that about one case of tuberculous disease of the female genitals is met with in every hundred autopsies of women dead from all causes (Pollock, Schramm, and Winckel); but authors differ greatly as to the frequency of its occurrence in women dead of pulmonary tuberculosis, Courty stating that it occurs in 1 per cent., and Nimias and De Christoforis in 8 per cent. of all autopsies on tuberculous women, the average frequency being from 2½ to 3 per cent. These figures serve to indicate that the affection is not of rare occurrence; but as the cases presented only secondary lesions in advanced examples of pulmonary or peritoneal tuberculosis, they attracted no attention during life, and after death were considered only as of pathologic interest.

The discovery by Geil (1857), that in rare instances the genital tract might present the only focus of tuberculosis in the entire body, naturally gave the affection an importance which it had not possessed previously. Similar cases were from time to time described by various observers, but it was not until Cohnheim and Verneuil had pointed out the possibility of infection through sexual intercourse, and Babes had demonstrated tubercle-bacilli in the vaginal seeretions, that anything like a general

[1] Read at the Semi-annual Meeting of the Medical and Chirurgical Faculty of Maryland, at Easton, November, 1892.

interest in the subject was aroused. This interest has been further increased by the removal by celiotomy, by various operators, of tuberculous tubes and ovaries.

For several years it has been my custom to describe accurately all specimens pertaining to the diseases of women that come within my reach, whether from the operating or autopsy table. All the specimens, whether they appear to be of interest or not, are accurately described in the fresh state, and then hardened and prepared for microscopic examination. This method of research has yielded most interesting and instructive results in more than one instance, and has served to demonstrate that genital tuberculosis is of far more frequent occurrence than has been believed.

In 169 cases of celiotomy, in which the tubes and ovaries were removed for various causes, including pus-tubes, adherent tubes and ovaries (peri-salpingo-oöphoritis), uterine myomata, and in some instances perfectly normal tubes and ovaries, I found two cases of tuberculosis of the tubes, which were so marked and characteristic that the diagnosis was made at the operating-table—that is, 1.25 per cent. of all of the tubes and ovaries removed for various causes presented macroscopic signs of tuberculosis.

On examining microscopic sections from all of my cases, I was surprised to find in six other cases, which appeared to be ordinary "adherent tubes and ovaries" (peri-salpingo-oöphoritis) or pus-tubes, that I had to deal with tuberculous affections of the tubes or ovaries, or both. These six cases would have escaped observation had it not been for the routine microscopic examination of all specimens, for they presented no macroscopic signs of tuberculosis whatever.

These cases I have designated as "unsuspected tuberculosis," and it is to them that I wish to direct particular attention.

Adding these six unsuspected cases to the two cases in which a macroscopic diagnosis was made, I have found altogether eight cases of genital tuberculosis in 169 cases of tubes and ovaries removed by celiotomy, or 4.75 per cent.

As all of the cases of genital tuberculosis were found in specimens that presented marked inflammatory changes, we may eliminate all other cases in considering the actual frequency of the dieease. Accordingly, we have had 96 cases of inflammatory disease of the uterine appendages, and of these, eight were tuberculous, or 8.2 per cent. In other words, we find that we have to deal with genital tuberculosis in about every twelfth case of celiotomy for the removal of tubes and ovaries the seat of inflammatory disease. This is certainly a startling frequency, especially if it be considered that the affection is considered as very rare.

Another point of great interest is the ratio between the "unsuspected" cases and those in which a macroscopic diagnosis is possible. Of my eight cases, only two were recognized on macroscopic examination, while the other six were only discovered on microscopic examination. In other words, 75 per cent. of my cases were "unsuspected," and would have escaped observation were it not for the careful microscopic examination of all specimens.

My experience thus far indicates that genital tuberculosis is three times more frequent than is generally supposed; and it is evident that such a frequency indicates that the disease is of considerable practical importance, as will be seen further on.

In all of the eight cases the tubes were affected, and in three, the ovaries; and in all but two, unmistakable tubercle-bacilli were readily demonstrated; and in all, the histologic characteristics of tuberculosis were so perfectly well marked that there was absolutely no possibility of error. In only two of the cases was there clinical evidence of tuberculosis elsewhere than in the genital tract; so that in the other six the lesions were probably primary in the genitals.

Tuberculosis may affect any portion of the genital tract, the order of frequency in which the various portions are involved being as follows: Tubes, uterus, ovaries, vagina, cervix, and vulva. The lesions may occur as miliary tubercles, tuberculous ulcerations, or diffuse tuberculous infiltration (caseous degeneration), or as a combination of any or all of these forms.

Owing to the fact that in the female the genital and urinary systems are distinct from one another, while in the male they unite to form a common genito-urinary apparatus, genito-urinary tuberculosis is three times less frequent in the female than in the male.[1]

ETIOLOGY.—The causal relation existing between the tubercle-bacillus and tuberculosis has been so conclusively demonstrated, and so universally accepted, that the question of the etiology of genital tuberculosis simply resolves itself into a consideration of the various modes by which tubercle-bacilli may gain access to the genital tract.

Whether, under any circumstances, there exists a predisposition to genital tuberculosis is a question that we are as yet unable to answer; but reasoning by analogy, it is quite possible that previous inflammatory conditions, and also the changes incident to the puerperal state may act as predisposing causes.

[1] For particulars concerning the pathologic anatomy and the histories of the cases, etc., see my monograph, "Tuberculosis of the Female Generative Organs," in vol. iii of the *Johns Hopkins Reports* and the *Transactions of the American Gynecological Society*, 1892.

This view is apparently borne out in one of my cases, in which I found gonococci in the pus of a tuberculous tubo-ovarian abscess.

For convenience of description, I may state that there are three general modes by which bacilli may gain access to the genital tract: 1. From the patient herself. 2. From the outside world. 3. Organisms that have escaped from the patient into the outer world may in turn gain access to the vagina and other parts. This, of course, is only a variety of the first class, but it is convenient to consider it as a class by itself.

1. *From the patient herself.* (*a*) Blood-infection. (*b*) From the peritoneum. (*c*) From other organs.

(*a*) *Blood-infection.* That this is a frequent mode of infection cannot be doubted if we recall the fact that, in a large number of cases, the genital affection is really secondary to tuberculosis elsewhere. Of course, it is possible, in a given case, that coincident infection from without may have occurred; but in the large majority of cases it is not plausible to admit even this possibility.

Blood-infection is beautifully illustrated in some of the cases in which the genital affection constitutes part of a general miliary tuberculosis occurring during the puerperium, when the formation of tubercles in the uterus is seen to be most marked at the placental site.

While it is perfectly evident that it is by means of the blood that infection almost always occurs in cases in which there is some other primary focus of the disease in the body, it is probably not so apparent that blood-infection may account for some of the apparently primary cases of genital tuberculosis. It is, however, only necessary to consider the analogy that exists between some cases of primary bone-tuberculosis, for which blood-infection alone is held responsible, to see that such a mode of origin is not impossible in some instances. This position is markedly strengthened by experiments upon the production of tuberculosis by feeding animals with food containing tubercle-bacilli, in some instances the lymph-glands and other organs becoming tuberculous without evidence of any lesion in the intestine, which is manifestly the point from which the organisms are first taken up.

From the consideration of the facts here brought forward, it becomes evident that in any given case it is almost impossible absolutely to exclude blood-infection.

(*b*) *From the peritoneum.* It has long been recognized that tuberculous peritonitis may extend to the tubes, or *vice versa*, and for a long time this was considered to represent the chief mode of infection for the tubes (Virchow, Rokitansky, Kiwisch, and others), and no doubt peritoneal tuberculosis is a frequent cause of genital tuberculosis. Osler states that the tubes are affected in from 30 to 40 per cent. of all cases of tuberculous peritonitis in women. Oppenheim found that of twenty-three cases the tubes were affected in twenty-one.

The experiments of Pinner, who found that small solid particles, as powdered cinnabar, when introduced into the peritoneal cavity of animals, were rapidly carried through the tubes and uterus into the vagina, also lend weight to this mode of origin.

As was pointed out by Weigert, Douglas's cul-de-sac is usually the portion of the peritoneum first affected in tuberculous peritonitis, thus indicating that bacilli, gaining access to the peritoneal cavity, in obedience to the laws of gravity, fall to its lowest part, and there exert their action. Bacilli that have thus fallen into Douglas's cul-de-sac are consequently placed in the most advantageous position to be taken up by the currents produced by the action of the cilia of the tubes, and thus to be borne on to other portions of the genital tract. An observation of Jani, a worker in Weigert's laboratory, is of especial interest in this connection, for in the tubes of a woman dead of pulmonary and intestinal tuberculosis, but exhibiting no signs of peritoneal tuberculosis, he found typical tubercle-bacilli. All of these observations teach us that bacilli, from whatever source, which gain access to the peritoneal cavity, even though they do not give rise to tuberculous peritonitis, are quite likely to be taken up by the tubes, where they may lead to the development of tuberculosis.

(*c*) *From other organs.* What has just been said concerning infection from the peritoneum, applies equally well to organisms gaining access to the genital tract from other organs, as the lymph-glands, the surface of intestinal ulcers, etc.

Ulcerations of the various organs adjacent to the genital tract may perforate intervening tissues, and lead to the formation of fistulous tracts, through which bacilli may be introduced directly into the genital tract.

Thus tuberculous ulcerations of the rectum or bladder may perforate into the vagina, and give rise to recto-vaginal or vesico-vaginal fistulæ (Jones, Catuffe); or intestinal ulcerations may perforate the walls of the uterus (Kaufmann), or the Fallopian tubes (Mosler), and lastly, tuberculous peri-rectal abscesses may perforate into the vagina.

2. *Infection from without.* The possibility of tubercle-bacilli gaining access to the vagina from the outside world becomes evident to anyone who considers the almost universal distribution of the organisms. No doubt bacilli are introduced into the vagina in a multitude of ways: by the examining finger, the use of foul syringes and dirty instruments, perhaps by unclean linen, etc., but especially

by coitus with men with the various forms of genito-urinary tuberculosis.

Of these various modes, we shall consider only the possibility of infection by coitus, and what may be said concerning it will apply equally well to the other modes of infection from without.

The possibility of infection by coitus was first suggested by Cohnheim, and later by Verneuil, and many articles have been written on the subject both *pro* and *con*.

There can be no possible *a priori* objection to the theory of this mode of infection, for it is quite possible that tubercle-bacilli may be introduced into the vagina during coitus with men affected with genito-urinary tuberculosis, but the question to be decided is whether bacilli so introduced can give rise to genital tuberculosis in the woman.

Of course, the resistant structure of the mucous membrane of the vagina and vaginal portion of the cervix would apparently render their infection very difficult, if not impossible; consequently, we have only to consider the effect of the introduction of bacilli into the uterus and tubes. It is evident that only a very small proportion of the bacilli introduced into the vagina could possibly find their way into the uterus, and it is probable that the great majority of those that succeeded in gaining entry into the uterus would be washed away at each menstrual period. Granting, however, that a few small miliary tubercles may be formed in the superficial layers of the endometrium, it is quite likely that they would be cast off with the exfoliated mucous membrane at each menstrual period. Accordingly, infection of the uterus by bacilli introduced from the vagina would not appear to be readily accomplished. If, however, the bacilli should chance to enter the tubes, they would meet with totally different conditions; for there they would not be exposed to the adverse influences which they encounter in the uterus, but would readily find protected places between the folds of the tubal mucous membrane, where they might develop unmolested.

These are the theoretic conditions with which we have to do, and now it remains to be seen what has been definitely proved in this direction. In 1887 Derville wrote the ablest article that has yet appeared in defence of this mode of infection. He found eight women with genital tuberculosis, having made the diagnosis in each instance by finding bacilli in the vaginal secretions, and, on examining their husbands or lovers, found that five of them had hard masses in their epididymes and testicles, which he considered of tuberculous origin. Unfortunately for the strength of his article, he did not demonstrate positively that the disease in the men was really tuberculosis.

In 1889, Cornil and Dobrolonsky stated that they were able to produce miliary tuberculosis of the endometrium by injecting pure cultures of tubercle-bacilli into the vaginæ of rabbits; but Oncarani and myself, in similar experiments, failed to obtain similar results.

As the result of my work, and from a survey of the literature on the subject, I would conclude that it has not yet been conclusively demonstrated that infection by coitus can occur; but that it is probable that it does occur in a certain proportion of cases.

3. *Infection by bacilli thrown off by the patient.* In cases of pulmonary tuberculosis, tuberculosis of the urinary organs or intestines, etc., it is perfectly possible that bacilli that have passed out of the patient's body may in some way gain access to the vagina, and thus come within the category that has just been considered. This being the case, we cannot admit that such a mode of infection has yet been proved. Moreover, in none of the cases in which such a mode of infection has been suggested will it be possible to exclude blood-infection.

CLINICAL HISTORY.—Genital tuberculosis may occur at any age, cases having been reported at the extremes of ten weeks (Brouardel), and eighty-three years (Krzywicki); but the period of life at which its occurrence is most frequent is that of the greatest sexual activity—that is, between the twentieth and fortieth years. It is in this period that the cases of primary genital tuberculosis have been observed; while the cases occurring at either extreme of age have been due, almost without exception, to secondary infection.

Unfortunately, the clinical history of genital tuberculosis, like that of tuberculous peritonitis, does not present the clear-cut characteristics that are so necessary to the early recognition of a given disease; its symptoms only too often being so masked by those of the primary affection that this involvement of the genitals is not suspected, and only found accidentally at the autopsy.

Even in the rarer cases of primary infection of the genitals the symptoms are often so obscure that the tuberculous nature of the affection is not only not suspected, but its discovery at operation or autopsy is a matter of surprise.

The symptoms accompanying tuberculous ulcerations of the vulva or vagina do not differ essentially from those produced by ulcerations of other origin, when affecting the same parts, and soon lead the patient to seek medical advice. The only point about them that is at all characteristic is their marked chronicity, and an apparent tendency to heal, which is, however, deceptive, as they nearly always recur.

In the few cases of tuberculous ulceration of the cervix on record, the symptoms have been hemor-

rhage and marked leucorrhea, which led to a clinical diagnosis of carcinoma, for which Péan, in one instance, removed the uterus by the vaginal method.

Tuberculous endometritis possesses no characteristic features. It is accompanied by profuse leucorrhea, the discharge of which frequently contains more or less caseous material; but there is nothing in its appearance to indicate the tuberculous nature of the affection. As the process invades the walls of the uterus, there is more or less hypertrophy of that organ. From the symptoms alone a diagnosis is absolutely impossible, and it is only when there are signs of tuberculosis elsewhere, or when the history of the case points to the possibility of infection from without (genito-urinary tuberculosis of the husband), that attention is directed to the possibly tuberculous nature of the disease. In some cases there are absolutely no symptoms, while in others the symptoms of the most severe forms of pelvic abscess are present. If the process be associated with tuberculous peritonitis, the latter may completely overshadow the process in the genitals. Many authors state that amenorrhea is frequently met with in these cases, but I have not found that the menstrual disturbances associated with genital tuberculosis differ from those accompanying the ordinary forms of inflammatory disease. Thus, in six of my cases, I found that menstruation was not affected in two; in two there was menorrhagia; in one, menstruation was scanty; and in the other, there was amenorrhea.

Tuberculosis of the genitals, when primary, may lead to secondary infection of other organs, and thus produce pulmonary tuberculosis, tuberculous peritonitis, or general miliary tuberculosis, and lead indirectly to the death of the patient. In other instances, whether the genital affection be primary or secondary, it may lead to death by marasmus and hectic fever, or by rupture of tubal or ovarian abscesses to general peritonitis.

DIAGNOSIS.—From what has been said concerning the clinical history of the affection, it becomes evident that, prior to the discovery of the tubercle-bacillus, it was impossible to make a positive diagnosis of genital tuberculosis *intra vitam;* and that now a positive diagnosis can only be made by means of the microscope. Accordingly, the difficulty of diagnosis varies with the accessibility of the affected part, and with our ability to secure its secretions for examination. In some instances, however, it is not difficult to make a probable diagnosis.

Tuberculosis affecting the vulva or vagina should be differentiated from a number of affections: the granulations in vaginitis granulosa, the papular and ulcerative syphilides, herpetic eruptions, hard and soft chancres, and carcinoma.

In the great majority of cases the affections named can readily be recognized, but if there is any uncertainty, a small portion of the affected area should be excised and submitted to microscopic examination.

It has already been mentioned that tuberculosis of the cervix has been mistaken for carcinoma, and the uterus removed under that supposition. This only serves to emphasize the importance of the excision and microscopic examination of small portions of the cervix in all cases before operation as a means of diagnosis.

If there be the slightest suspicion of tuberculosis of the uterus, the vaginal and uterine secretions should be examined with the greatest care for tubercle-bacilli. If the examination prove negative, the uterus should be curetted and the portions removed submitted to microscopic examination, when the histologic character of the tissue and the demonstration of the tubercle-bacilli will make the diagnosis absolutely certain. If examination should fail to yield positive results, a portion of the curetted tissue should be inoculated into a rabbit.

In very chronic cases of endometritis, which cannot be attributed to a perfectly definite cause, I would emphatically recommend the employment of the methods here indicated, and I feel confident that by so doing we would not infrequently meet with cases of genital tuberculosis that would otherwise have escaped detection.

The diagnosis of tuberculosis of the tubes and ovaries is far more difficult than when the disease affects the uterus or lower portions of the genital tract, simply on account of the difficulty of obtaining the secretions for examination.

I consider that it is impossible to make a positive diagnosis of genital tuberculosis simply by bimanual palpation.

A fairly probable diagnosis of tuberculosis of the tubes may be made, if, in addition to distinct tubo-ovarian masses, one can diagnosticate a tuberculous peritonitis. If the tubal tumor occur in a tuberculous woman, who presents no sign of tuberculous peritonitis, we shall not be able to make even a probable diagnosis, but in these cases we should always bear in mind the possibility of the tuberculous nature of the tubal disease. Lastly, if the process be limited to the tubes and ovaries, without any peritoneal or pulmonary involvement, I do not think that it will be possible to diagnosticate the affection by physical examination of the patient.

In some instances, no doubt, the examination of the vaginal secretion might reveal the presence of the tubercle-bacillus, but in the vast majority of cases the examination would yield negative results. In some cases of pyosalpinx, in which tuberculosis is suspected, Edebohls has recommended vaginal

puncture of the pus-sac, and the examination of its contents for bacilli. In one instance he was enabled to make a positive diagnosis before operating.

PROGNOSIS.—Genital tuberculosis, whether primary or secondary, is always to be regarded as a grave affection. The primary process, even if it remain limited to the genitals, always carries with it the possibility of a general infection, with its uniformly fatal termination. It also has a marked tendency to lead to the development of tuberculous peritonitis. Even if the process remain limited to the tubes and ovaries, it is always possible that it may go on to suppuration and abscess-formation, which in turn may lead to the fatal termination by marasmus and hectic fever, or, by rupture, to general peritonitis.

If, on the other hand, the genital process is secondary to tuberculosis of the lungs or other organs, the dangers mentioned are added to those of the already serious primary affection.

In rare instances the genital process may undergo conservative fibroid change, and it is possible that in some cases the deposit of calcareous material may lead to healing; but it must be admitted that these conservative processes occur but rarely, and that the usual course of the disease is one of progressive advancement.

TREATMENT.—In view of the possibility of infection from without, the necessity for prophylactic measures becomes apparent. They are especially indicated when there is any suspicion of genital tuberculosis on the part of the husband, when the dangers attending coitus should be pointed out, and abstinence recommended.

Of course, the treatment varies as different portions of the genital tract are involved, and as the disease is primary or secondary. It is also greatly influenced by the general condition of the patient, and by the various complications that individual cases may present.

Tuberculous ulcerations of the vagina and vulva are usually secondary to tuberculosis elsewhere. In a considerable number of cases the application of irritants, as tincture of iodine, iodoform, or lactic acid, is frequently followed by a total disappearance of the ulcerations; but, unfortunately, these have a marked tendency to recur, so that the effect is usually only temporary; still, in a few instances the use of such agents leads to permanent disappearance of ulceration. If the ulceration is isolated, as is sometimes the case, and resists the palliative methods of treatment, the diseased area should be excised, and the edges of the wound brought together by sutures.

If a tuberculous ulceration of the cervix be recognized, and fail to respond to conservative treatment, we should not hesitate to amputate the cervix, if we can feel reasonably sure that the rest of the uterus is not affected.

If we hope to deal with tuberculous endometritis, we should first satisfy ourselves that the tubes and ovaries are not involved; any inflammatory disease of the tubes, associated with tuberculosis of the uterus, would indicate that they are likewise involved.

If the process be limited to the uterus, we should at once thoroughly curette it and then introduce iodoform into the cavity of the uterus. If, after this, there is any recurrence of the affection, there should be no hesitation as to the propriety of vaginal extirpation of the uterus, removing the tubes and ovaries at the same time.

On account of the difficulty of diagnosis, one rarely has to face the question of removal of the tubes and ovaries when the seat of primary tuberculosis, excepting when celiotomy has been undertaken for some other indication, when their condition becomes a matter of surprise. Of course, in these cases there can be no question as to the propriety of their removal.

In secondary cases associated with pulmonary or peritoneal tuberculosis, the removal of the tubes is entirely dependent upon the general condition of the patient. In advanced cases of pulmonary tuberculosis there should be no thought of operating; but in the early stages of the disease, an operation may be attempted as long as there is any prospect of permanent recovery from the primary affection.

In cases associated with tuberculous peritonitis, we should not hesitate to remove the tubes and ovaries if possible, unless the general condition of the patient is particularly unsatisfactory (advanced pulmonary tuberculosis); for we should bear in mind the curative influence that celiotomy frequently exerts in tuberculous peritonitis and the possibility of the affection having originated in the tubes.

CLINICAL MEMORANDUM.

RESECTION OF BOTH ULNAR BONES, WITH AN EXPERIMENT IN BONE-GRAFTING.

BY JAMES KENNEDY, M.D.,
OF SAN ANTONIO, TEXAS.

A WOMAN, about twenty-eight years old, who gave a history of rheumatism in both forearms for a period of two years or more, came to see me about one year ago, complaining of rheumatic pains at and below both elbow-joints. At about the middle of either forearm, at its posterior and lateral aspects, was situated a tumor which I diagnosticated periosteal, and although no syphilitic history could be obtained, the epitrochlear and sub-occipital glands were enlarged and indurated. The tumors sensibly diminished in size under the influence of mercuric chloride and potassium iodide, in large doses; hence it is reasonable to conclude that they were of syphilitic origin.

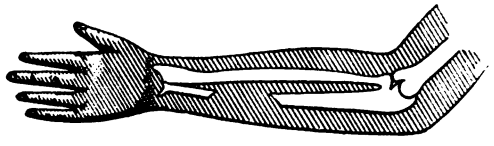
When the patient came to consult me the second time (one year after the first consultation) she presented both arms for inspection, and over the middle of each tumor was a large, circular ulcer, with sloughing edges, discharging pus in small quantities.

The woman stated that a small sore had made its appearance on each arm, and that the physician to whom she had gone, after having given up the treatment that I prescribed for her, had told her that it would be necessary to scrape the sore, and under the influence of chloroform had done some kind of an operation which had increased the pain and enlarged the sores without any benefit arising therefrom.

I again placed her upon mercuric chloride, gr. ¼, and potassium iodide, gr. lx, three times daily, and again had the satisfaction of seeing the tumors reduce in size. Suppuration still continued, although in diminished amount; detachment of the sloughs had exposed dead bone.

I advised an operation for the removal of the necrosed bone, to which the woman consented. I cut down upon the left ulna and found it dead throughout its entire circumference for a distance of about three and three-fourths inches and made a resection of this length. Having dressed the arm antiseptically, and applied an anterior splint, I concluded to defer operation upon the right until such time as the patient would have recovered some use of the arm upon which I had just operated, and would then not be entirely helpless.

FIG. 1.



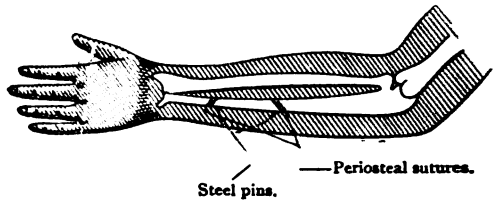
Left arm. Representing section removed.

It occurred to me that if I could successfully graft a section of bone so as to fill the gap, or rather to establish continuity of bone-structure, the patient might recover perfect use of her arm. Feeling that the possibilities in view were such as to warrant the use of any means that could in any way contribute toward the desired end, I submitted to her my proposition to try the experiment, telling her, however, that it was an experiment, and one that had not proved successful in any case of which I knew. I explained that in my opinion the only ill-result of failure would be a delay of perhaps a week's time in recovery. The difficulty that now presented itself was in the selection of a method. Not having the patient in a hospital where I might have at my disposal a corps of trained nurses and assistants, it was very clear that I could not repeat the experiment of Phelps, the details of which required for the performance facilities that were not at my command.

The method upon which I finally determined was to make a vivisection from the foreleg of a goat and graft it upon the segments of bone remaining in the patient's forearm, which I proceeded to do in the following manner: A full medium-sized goat in prime condition was obtained, and, after having been thoroughly scoured and drenched with antiseptics, the right foreleg was shaved nd the soft parts rapidly dissected away from the bone, leaving only the periosteal covering. The periosteum was afterward dissected in such a way as to leave flaps of a half-inch or more at either extremity of the section, which was so made as to be of the same length, and its surfaces so directed as to correspond with the necrosed section that had been removed. While this section was being prepared the patient was anesthetized and the wound prepared for the reception of the graft.

The wound was washed, the extremities of the bone freshened by scraping, and the periosteum dissected up for a distance of a quarter of an inch. The graft was now introduced, the surfaces accurately approximated, and the section fastened by the insertion of steel pins in the manner shown in the cut. The periosteum of the

FIG. 2.



Left arm. Representing graft in place with steel pins and periosteal sutures.

graft was stitched to the periosteum of the exsected extremities of the patient's bone by means of silkworm-gut, and the edges of the wound in the soft parts approximated by means of silk sutures, thus closing in the section.

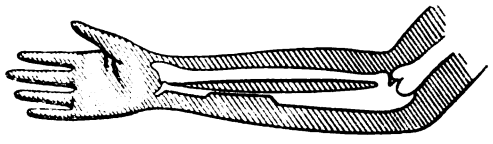
The limb was dressed, splinted, and left for one week. During this time the patient's temperature fluctuated between 100° and 101° F.

The dressing was removed at the end of a week, when it was found that the graft had not united to the bone and the wound was full of pus.

The medullary canal of the transplanted section was full of foul-smelling pus, and its periosteum had entirely disappeared. The cut extremities of the patient's bone were covered with healthy granulations, which were, however, most numerous near the medullary portion. The graft was removed and the wound allowed to heal by granulation.

The patient has a useful arm, although naturally much weaker than it was before the advent of the disease-process. The woman can execute all of the movements ordinarily performed in health, and experiences only a slight hindrance to the movements of pronation and supination.

FIG. 3.



Representing right arm with section removed.

At the end of the sixth week the patient had so far recovered the use of her left arm as to enable her to feed herself; so I concluded to operate upon the other arm without further delay. On cutting down upon the ulna of this arm I found that the necrotic process had involved

about four-fifths of its circumference. The portion uninvolved was along the interosseous border. The character of the section made is shown in Fig. 3. It was difficult to make, on account of the danger of cutting through or breaking the thin sliver of bone with which I designed to perpetuate the continuity of structure.

The arm was dressed in the manner already described in the operation on the other arm.

A feature worthy of remark here is the comparatively slight disability which the patient suffered from this operation. She would not have the arm remain in a splint or sling after the second day, but insisted on using it to wait upon herself.

Both arms have now healed entirely, and the patient is able to do housework; she says that she suffers no inconvenience at all from the right arm, which is the one in which a sliver of bone was left connecting the fragments to perpetuate continuity of structure, but suffers a little from pain in her left arm whenever she attempts to lift anything heavy. This pain seems to be occasioned by the pressure of the outer edges of the fragments on the soft parts when a strain is thrown upon the arm. It is probable that when the cicatricial plug that fills up the gap and connects the fragments becomes more firmly organized this trouble will disappear.

Of course, it is not reasonable to suppose that the patient will ever have as much strength in the arm from which a section through the entire thickness of the ulna was taken, because the gap is filled and continuity is established by a plug of material less firm and unyielding than healthy bone, and is not capable of transmitting the force of muscular contraction or offering the resistance so necessary to leverage. Of necessity a great strain is thrown upon the interosseous, oblique, and radio-ulnar ligaments, and the pronator and supinators of the forearm whenever the patient attempts to lift any heavy weight.

With the right arm, however, the case is somewhat different. It is possible that in the course of time the block of bone removed by the operation may be entirely replaced by growth of the thin strip which perpetuates the continuity of bone in the ulna of that arm. Even now the woman has such perfect use of the arm and so much strength in it that she believes it is as strong as it ever was.

The lesson which this experience seems to teach is the advisability of perpetuating continuity of bone-structure whenever possible, no matter if the connecting sliver of bone is thin, so long as it is alive and healthy.

Valuable assistance was rendered me in these operations by Drs. Russell Caffery and Henry J. Trolinger, to both of whom I take this opportunity to extend my thanks.

MEDICAL PROGRESS.

The Recent Cholera in New York.—DR. BIGGS, Chief Inspector of the Division of Pathology, Bacteriology, and Disinfection of the Health Department of the City of New York, has prepared a report of the pathologic and bacteriologic work performed during the recent outbreak of cholera in that city. Attention is called to the impossibility of positive differentiation between cholera morbus and Asiatic cholera from the clinical features alone, and complementary importance is laid upon bacteriologic study. The history of the discovery of the cholera-spirillum is succinctly given.

In the recent outbreak the first case investigated was that of a man, thirty-two years old, who died after an illness of about thirty-six hours' duration, having suffered with severe watery diarrhea and vomiting, accompanied by persistent cramps in the abdomen and legs, followed by collapse and death. The case was reported to the Health Department as probably one of Asiatic cholera. The post-mortem examination, however, disclosed no distinctive lesions, and, in the absence of evidence of exposure to infection by Asiatic cholera, and in the failure of the microscopic examination to demonstrate the presence of cholera-spirilla, a provisional report was made that the case was one of cholera morbus. A biologic study was, however, at once instituted, and in the course of a few days it became evident that the case was one of Asiatic cholera. The identity of the organisms found was confirmed by eminent authority. During the month following the occurrence of this first case a diagnosis of Asiatic cholera was made in nine cases in New York City and in one case in New Brunswick, N. J., either from the biologic examination or, in two or three cases in which no biologic examination was made, from the clinical history and a knowledge of association with cholera-patients. Of the eleven cases of Asiatic cholera, nine terminated fatally. Of some twenty-four suspicious cases in which biologic examination failed to demonstrate the presence of cholera-bacilli recovery ensued in all. In all of the cases of Asiatic cholera the clinical history was practically the same: vomiting, watery diarrhea, cramps in the abdomen and legs, collapse. The illness lasted from six or eight to thirty-six hours, and in one instance for five days. In most of the cases that proved to be instances of Asiatic cholera the intestinal contents were examined after death. In one case the intestinal discharges were examined shortly before death, and in the suspicious cases (which proved to be instances of cholera morbus) the intestinal discharges were examined. In one or two instances soiled clothing was examined. The results in all of the cases of Asiatic cholera were identical, the cholera-spirillum being constantly found. The post-mortem appearances and the anatomic lesions were the same in all of the cases, and so striking and so unusual as to constitute strong though insufficient ground for a diagnosis. The face was drawn and had a peculiar expression; the cheeks and eyes were much sunken; the malar bones were exceedingly prominent; the extremities of the nose, fingers, and toes were shrivelled and often cyanosed; the extremities were semi-flexed; rigor mortis was pronounced; and in some instances the temperature remained high for several hours after death. On opening the abdomen the intestines presented a peculiar rosy tint, which was especially marked in the ileum. The small intestines were, as a rule, distended with fluid. All of the parenchymatous organs appeared congested, and presented a condition of cloudy swelling. The brain and its membranes were also congested. The blood everywhere was fluid, or showed but a few dark, soft clots. The mucous membrane of the stomach and intestines presented few changes apparent to the naked eye, excepting marked prominence and swelling of

Peyer's patches and the solitary follicles in the lower part of the ileum. In all cases the intestinal contents were notable for an absence of biliary coloring matter or ordinary fecal matter. They were usually large in amount, of gruel-like consistency, and slightly pinkish hue. The sediment that formed on standing was found to be largely made up of desquamated epithelial cells, mucus, microörganisms, and granular detritus. The bladder was usually empty. In a few cases there was a peculiar dryness of all of the organs.

Pubeotomy. — ZWEIFEL (*Centralblatt für Gynäkol.*, 1892, No. 44, p. 857) has reported the case of a woman, thirty-seven years old, married ten years, who had borne seven children at term, six of which were delivered by version and one with the aid of the forceps. There was only one living child, which was born spontaneously in the eighth month. The others were all stillborn. The woman greatly desired to have a child and was willing to submit to any necessary procedure. She came under observation after pains had been present for two days. The normal period of pregnancy had elapsed. The amnion had ruptured thirty-six hours previously; the os uteri was as large as the palm of a hand; the lips of the cervix hung relaxed in the vagina. The child was in the left occipito-anterior position, and was of moderate size. The head was high and mobile above the pelvic strait; the sagittal suture was transverse. The mother's pelvis was a flat rachitic. The distance between the anterior superior iliac spines was 10 inches; that between the crests, 10.78 inches; that between the trochanters of the femur, 11.93; the external conjugate was 6.55; the diagonal conjugate, 3.85 inches. The patient was 59.29 inches tall and presented other evidences of rachitis. Under the circumstances it was determined to perform pubeotomy. Not until the ligamentum arcuatum was severed, however, was it possible to deliver the child, even with the aid of the traction-forceps, a separation of 2.5 inches occurring. The section of the symphysis pubis occupied fifteen minutes; the extraction of the child, five hours and twenty-eight minutes. The child was a female; it weighed 7 pounds, and measured 20 inches in length; the other measurements were as follows: occipito-frontal diameter, 4.62; bi-parietal, 3.08 (?); bi-temporal, 3.66 (?); occipito-mental, 4.91; occipito-frontal circumference, 13.86; the sub-occipito-frontal circumference, 13.28; the bis-acromial diameter, 5; the bis-acromial circumference, 14.63; the thoracic diameter, 3.47; the thoracic circumference, 12.13; the bis-trochanteric diameter, 3.47; and the bis-trochanteric circumference, 11.17. The child died after two days, of pneumonia. On the seventeenth day post-partum, the first attempt to walk was attended with pain, but on the nineteenth day this difficulty had disappeared, and on the twenty-first day the patient was presented to the Obstetrical Society of Leipzig. Zweifel calls attention to the danger of a possible rupture of the sacro-iliac articulations, and records the case of a woman with a simple flat pelvis in which in the birth of a large child both the symphysis pubis and the two sacro-iliac articulations were ruptured.

Immunity to Cholera Conferred by the Milk of Protected Animals.—KETSCHER (*Compt. rend. hebdom. des Séances de la Soc. de Biol.*, 1892, No. 32, p. 832) has succeeded in conferring upon guinea-pigs immunity to cholera by previous treatment with the milk of protected animals. A fatal result was likewise averted when inoculation was shortly followed by treatment with the protective milk.

THERAPEUTIC NOTES.

Oil of Camphor Subcutaneously for Pulmonary Tuberculosis.—At a recent meeting of the Berlin Medical Society ALEXANDER (*Münchener med. Wochenschr.*, 1892, No. 47, p. 844) related that he had employed oil of camphor subcutaneously for three years in the treatment of pulmonary tuberculosis. The results were to be found in increased motor power, a strengthening of the action of the heart, improved digestion, diminution of suppuration, antihydrosis, antipyresis, and hypnosis. As the action of the oil proved to be cumulative, an injection of fifteen minims was practised on each of four consecutive days, followed by an interval of a week. In febrile pulmonary cases only a minim and a half were injected; in febrile laryngeal cases, however, fifteen minims. In the latter cases local treatment with equal parts of oil of camphor and olive oil proved useful. The treatment seemed best suited for advanced cases.

For Pertussis.—

℞.—Resorcin. . . . . gr. v.
Antipyrin. . . . . gr. xv.
Aquæ menth. piper. . . . fʒj.
Aquæ destillat. . . . . fʒj.—M.

KRAISMANN, *Therap. Monatsh.*

For the Ephelides of Pregnancy.—

℞.—Zinci oxidi pur. . . . . gr. v.
Hydrarg. oxid. flav. . . . gr. xx.
Otto rosæ . . . . . gtt. x.
Ol. ricini, Ol. theobromæ } . . āā ʒijss.—M.

Ft. unguent.

S.—Apply topically with gentle friction twice daily.

L'Union Méd., No. 137.

For Chapped Hands.—

℞.—Menthol. . . . . gr. iij.
Salol. . . . . gr. vj.
Ol. olivæ . . . . . ʒj.
Lanolin. . . . . ʒiij.—M.

Ft. unguent.

S.—Apply topically once or twice daily.

L'Union Méd., No. 133.

For Balanitis.—

℞.—Atropinæ sulphat. neutral. . gr. j.
Zinci sulphat. . . . . gr. ij.
Acid. boric. . . . . gr. iv.
Aquæ destil. . . . . fʒj.—M.

S.—Apply topically twice or thrice a day by means of a brush. If the balanitis is complicated by phimosis, a small quantity of the solution is injected between the glans and the prepuce.

CHICHESTER, *L'Union Méd.*, No. 135.

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SATURDAY, DECEMBER 24, 1892.

NATIONAL QUARANTINE.

DURING the last four or five months there have been published a goodly number of papers, addresses, letters, and editorials upon the subject of a National Quarantine, and, so far as we have seen, all of these, whether in the medical or the lay press, agree that such a quarantine is desirable in the interests of public health, of travellers, and of commerce. This is, however, by no means the first time that the desirability of a National and uniform system of maritime inspection has been very generally agreed upon, and urged upon Congress in various ways. Why, then, has it not been authorized and established? The answer to this question involves a statement, not only of the objections which have been publicly made to the establishment of such a system, and which will be made again if the matter comes before Congress, but also of the real, practical difficulties which have, heretofore, either prevented or made futile several attempts to provide a really National quarantine.

The objections publicly made to it are that it is unconstitutional in that it would interfere with one of the police powers of the States, specially reserved to them in the Constitution of the United States. The argument is that the material interests of the communities of a State, and therefore of the State itself, are so deeply involved in the prevention of epidemics, and in the methods employed for such prevention, that the State should in all cases control the appointment of, and be able to hold directly responsible, those employed in the quarantine service of or for the State.

It is demanded by those holding these opinions, not only that the States shall retain the right granted them by the Constitution to proclaim and enforce such quarantine regulations, in addition to those made by National authority, as they see fit, but also that the proclamation and administration of quarantines should in all cases be reserved to State or municipal authorities on the ground that only local experts can properly decide as to what is to be done or how to do it. They say that it is advisable that the General Government should aid the States with money, and in other ways, to establish and maintain quarantines, but that the power of the General Government to control the times and methods of such service should be limited to the withholding of aid in case the local regulations are not approved.

Everyone admits that Congress, by virtue of its power to regulate commerce, can establish and control quarantines against foreign countries, but if any State can set up and maintain a second or local quarantine within or behind the general one, and refuse to allow persons, baggage, or goods to pass these local barriers, although they have passed those set up by the United States, then the authority of the United States is made practically *nil*, and it cannot be expected that commerce will submit to the double delays and hindrances that must thus arise.

To have a really useful National quarantine, State and local quarantines must be given up.

The States may do this by mutual agreement with each other and with the United States precisely as New Jersey has agreed to let New York control the quarantine for the Jersey coast bordering on New York Bay and harbor, and this is probably the most immediately practical method of overcoming this particular difficulty.

No doubt some States would, at first, refuse to accede to such an agreement. This would mean that a number of men in that State, mostly officials, would desire to keep in their own hands the power and the pay derivable from quarantine, and that they would be able to persuade the legislative and executive authorities of the State that they were more competent and more to be trusted than the

United States officials. This state of affairs might perhaps last a year or two, but not longer, for the United States, in conjunction with the concurring States and the great commercial interests involved, would be able to exert an influence which would overcome that due to personal and pecuniary considerations on the part of a few dozen individuals.

The real, practical difficulties in the way of establishing a satisfactory quarantine system are much more numerous than the legal and constitutional objections referred to, and taken together, have heretofore proved a formidable obstacle, but no one of them is very strong by itself, and each one can be overcome if taken singly. The first question to be settled is whether we want a National health-organization or only a National quarantine. Either may exist without the other, although the first is generally supposed to include the second, and sanitarians, physicians, politicians, and jurists are divided in their opinions as to whether both or only one, and if the latter, which one, is most expedient and desirable at the present time. This question, with others connected with proposed legislation on the subject, we will consider hereafter.

ANTICHOLERIN.

IT is impossible to view the work that is going on about us and not be inspired with the hope that the not distant future may see us provided with the specific means for the treatment of the various infectious diseases. The foundations for this magnificent structure seem already to have been laid. Among a number of others, KLEBS has added a valuable increment to our knowledge upon this interesting and important subject. He considers as the expression of a great natural law the fact that, as a result of tissue-metamorphosis, there are produced in all living organisms certain substances which, retained, give rise to toxic symptoms, while certain others are endowed with the faculty of shielding the organism from various deleterious influences. The first group of substances KLEBS designates *autotoxines;* the second, *allotoxines*. Applying this law to the biology of the pathogenic microörganisms, he has endeavored to separate these two groups of substances, so opposed in action, so as to be able to utilize therapeutically those that are inimical to the life of the microbe.

Following out this line of thought, KLEBS prepared from the tuberculin of KOCH a purified product to which he gave the name *tuberculocidin* (see THE MEDICAL NEWS, April 16, 1892, p. 441). Pursuing the subject further and applying the principle to the treatment of cholera, this industrious investigator, with almost the precision that characterizes a definite chemical reaction, has succeeded in separating from cultures of cholera bacilli a product to which he gives the name of *anticholerin*, and traverses the successive steps necessary to demonstrate the harmlessness as well as the curative virtues of the agent.

Anticholerin is obtained by filtering sterilized cultures of the cholera-bacilli and concentrating the filtrate over a water-bath; from this residue the allotoxines, which would be injurious to the animal organism, are precipitated by means of absolute alcohol; the autotoxines, to which the bactericidal, curative, and immunifying properties are ascribed, remaining in solution. It was successively shown that these latter substances are capable of preventing the development of cholera-organisms upon agar and gelatin with which they were mixed, as well as of checking the growth of the same organisms in cultures to which anticholerin was added. It was next demonstrated that anticholerin is not toxic to guinea-pigs, and subsequently the same fact was demonstrated with regard to man. It was further shown that guinea-pigs subjected to a preliminary treatment with the anticholerin are proof against cholera-infection. The fluid that collected in the abdominal cavities of unprepared animals inoculated with cholera-bacilli proved capable of affording protection to other animals. A favorable influence was also exercised upon inoculated animals by treatment with anticholerin.

It yet remained to verify in man the results reached in the lower animals. This part of the research was carried out at the Neues Allgemeine Krankenhaus at Hamburg, and the results are published by MANCHOT (*Deutsche med. Wochenschr.*, 1892, No. 46, p. 1050). Thirty-one cases of cholera of the severer types were treated with anticholerin, with twenty-one deaths—a mortality of 67.7 per cent. Of one hundred and three cases of the same kind treated with saline infusions eighty-seven died—a mortality of 84.5 per cent. The number of cases treated, it is true, is too small to permit of definite conclusions, but from all the circumstances there seems ground for believing that anticholerin possesses positive therapeutic virtues. The remedy was injected subcutaneously in doses of one c.cm.: on the first day repeated six or seven times; on the second day five or six times; on the third day three

times; on the fourth day once or twice. The frequency of injection was governed by the depression of the temperature, upon which anticholerin exercised a favorable influence, being usually followed by febrile reaction. Other measures may advantageously be conjoined with the employment of anticholerin. Enteroclysis, hypodermatoclysis, venous infusion, stimulation, and artificial heat each has its place, and is not to be omitted under the circumstances to which it is appropriate.

A STATE BOARD OF MEDICAL EXAMINERS FOR PENNSYLVANIA.

THE legislative committee having the proposed bill in charge have issued a pamphlet designed to further the passage of the bill by citation of a most convincing array of authorities, facts, and testimonials. There can be no possible question as to the power of the State to regulate and define the rights of those into whose hands the health of her citizens is placed.

That even the Cherokee and Choctaw Nations (Indian Territory) have such a law is a striking commentary upon the efforts of a few to oppose the movement in the State of Pennsylvania. It seems that we are to be about the twenty-fifth of our belated States to pass such a law—for pass it certainly will! In such a cause, although "better late than never," how preferable would have been "better never late!"

In view of the facts that there are in Pennsylvania some 932 undiplomaed quacks at their nefarious work, and that there are also some 222 more with bought diplomas from bogus colleges, it would seem that a bill so uncriticisable as is the proposed one, could only command the cordial support of all right-minded people.

When in the unendowed college all the tuition-fees pass directly from the student's pocket to the professorial pocket, and when the greater the number of students and graduates the greater the professorial income, the only thing that prevents the degradation of medical colleges and that keeps them from being diploma-mills, frank or hypocritical, is the moral character of the professorial person. And, as we all well know, the professorial character may by no means be safely subjected to any great strain in these days of politics and finance. Hence the excellent wisdom of the committee in placing as the first of its testimonials that of PRESIDENT ELIOT, who always sees clearly and truly the *fons et origo mali*:

"IT IS A CLEAR DISADVANTAGE IN MEDICAL COLLEGE EDUCATION THAT THE DEGREE GIVEN BY A FACULTY, A TEACHING FACULTY, SHOULD ADMIT TO THE PROFESSION. THE STANDARD SHOULD ALWAYS BE OUTSIDE, DETERMINED BY ANOTHER POWER."

OTOSCLERONECTOMY IN CHRONIC AURAL CATARRH.

OTOSCLERONECTOMY (οὖς, ὠτός, ear; σκληρός, hard; ἐκτομή, excision) is a new coinage designed to express the surgical removal of part or all of the sclerosed and ankylosed conductors of sound in chronic catarrhal otitis media. As this operation has for its object the relief of tinnitus, deafness, and aural vertigo, more interest surrounds it than environs "otonecronectomy," or the excision and removal of the necrotic conductors of sound in chronic purulent otitis media. This interest is due to the fact that there are more cases of chronic catarrhal deafness than of chronic purulent otitis media seeking relief, and also because "otonecronectomy" is but following out an ordinary surgical indication, and requires no discussion.

Though the earliest attempts at "otoscleronectomy" were made in Europe, the elaboration and signally good results of this operation are due to the acumen, industry, and boldness of American aurists displayed within the past decade. The great advance in aural surgery is the direct outcome of the enthusiastic and patient labor of a few men devoted solely to otology, untrammelled by any other special work. The pioneer work in this field of surgery, performed by SEXTON, of New York, and BURNETT, of Philadelphia, has led naturally to the recent modified operation of JACK, of Boston, viz., the removal of the stapes only.

These operations have proved beyond all cavil that the sound-conductors, namely, the membrana tympani and the three ossicles, can be removed, not only without any bad results to the patient, but with benefit to all the symptoms of chronic aural catarrh. Judging by past experience, the relief to deafness, tinnitus aurium, and aural vertigo is permanent, with the exception, perhaps, of a very small number of cases in which the indications were obscure—an incident common to all surgical procedures.

From the experiments of SIR ASTLEY COOPER down, it has been observed that generally the good

effects obtained by excision of part or of all of the membrana were lost, so far as *hearing* is concerned, by the reproduction of the drum-head. What changes of opinion in this regard may be brought about by the removal of the incus and stapes, or the stapes only, the membrana being allowed to remain *in situ*, it is not yet known. Good results, however, have attended all of these modifications of otoscleronectomy.

The importance of any harmless operation that can be applied with reasonable assurance of relief in these hitherto hopeless cases of chronic catarrhal deafness, noises in the ear, and ear-vertigo, cannot be overestimated.

COMMENDABLE CHANGES IN THE SPELLING OF CHEMICAL WORDS.

THE *Dental Cosmos* informs us that after four years of correspondence and discussion, the Committee of the Chemical Section of the American Association for the Advancement of Science has adopted the following changes in spelling and pronunciation: The final *e* is dropped from all words terminating in *ide*, and the syllable pronounced *-id* (as chlorid, iodid, hydrid, oxid, hydroxid, amid, anilid, murexid). The final *e* is also dropped from the names of all elements and compounds which formerly terminated in *ine* (except doubly unsaturated hydrocarbons), and the syllable pronounced *-in* (as chlorin, bromin, etc., amin, anilin, morphin, quinin, vanillin, alloxatin, absinthin, emulsin, caffein, cocain). The spelling alū'minum is authorized instead of aluminium, and *f* is used instead of *ph* in the spelling of sulphur and its derivatives (as sulfur, sulfid, sulfite, sulfate, sulfo-, etc. This change in the spelling of sulphur, though it is radical, is simply a return to the original form of its spelling, is in consonance with its spelling in other modern languages, and is in harmony with phonetic requirements. The substitution of *ph* for *f* in this word was a distinctly modern innovation.

The system has been adopted by the editors of *Funk and Wagnall's Standard Dictionary;* also by the *Journal of Analytical and Applied Chemistry*, of Easton, Pa. It is used by PROF. GEO. C. CALDWELL, of Cornell University, and President of the American Chemical Society, in the second edition of his *Elements of Chemical Analysis;* by DR. T. STERRY HUNT in his *Systematic Mineralogy;* and by DR. R. A. WITTHAUS in his *Manual of Chemistry*.

These changes being evidently in the line of conservative progress, and sooner or later to be generally adopted, THE MEDICAL NEWS, unless distinctly against its contributors' wishes, will hereafter follow the recommendation of the Committee, except in so far as preserving the terminal "e" that distinguishes alkaloids.

WARD-CLASSES AT THE PHILADELPHIA HOSPITAL.

AS was intimated in THE NEWS (May 28, 1892, p. 603), the object of the Bureau of Charities in dealing anew with the subject of ward-teaching was not to prevent or restrict the legitimate use of the facilities of the Philadelphia Hospital for medical education, but to prevent illegitimate and unauthorized abuse thereof. The rules governing ward-classes, as now promulgated in the desire to attain the end alluded to, are wise and proper, and will, no doubt, be cordially received and upheld by the Staff. The method pursued by PRESIDENT LAMBERT and his colleagues in obtaining data and advice cannot be too highly commended as an exhibition of that proper courtesy and mutual confidence that ought always to obtain between lay boards of direction and medical officers. All concerned are to be congratulated on the outcome.

SELECTION.

THE RIGHT AND THE WRONG OF IT.

THE *Practitioner's Monthly* says: "It is not wrong to use a proprietary medicine because the code says so or because some men think so." Quite correct. It is wrong, because it damages both medicine and pharmacy. It is wrong, because it retards progress, sacrifices the good of the mass for the profit of the individual. The code or men's thoughts are of value only as they represent facts.—*The American Lancet.*

REVIEWS.

REGIONAL ANATOMY IN ITS RELATION TO MEDICINE AND SURGERY. By GEORGE MCCLELLAN, M.D., Lecturer on Descriptive and Regional Anatomy at the Pennsylvania School of Anatomy; Professor of Anatomy at the Pennsylvania Academy of the Fine Arts, etc. Illustrated from photographs taken by the author of his own dissections, expressly designed and prepared for this work, and colored by him after nature. In two volumes. Vol. II. Philadelphia: J. B. Lippincott Co., 1892.

IN the first volume the regions of the head, neck, upper limbs, and thorax were treated, and this volume completes the work by including the remainder of the

body. The impressions which we received from a careful examination of the first half of the treatise are confirmed by the study of the concluding portion. The descriptions are in the main accurate and well-phrased; excellent discretion is displayed in the selection of topics to be dwelt upon and of matters to be passed over cursorily; an eminently practical aspect is given to the subject by frequent reference to the applications of anatomic knowledge to the every-day needs of the practitioner; and the plates are instructive and artistic.

In view of so much that is admirable, we hesitate about uttering a word of adverse criticism. But there are a few blemishes of so conspicuous a character as to demand mention, if for no other reason than that they may be corrected in the future editions to which the merits of the work entitle it. The author follows almost all of the books in describing the liver as it appears when removed from the body and laid upon a flat surface. Naturally it sags by its own weight, and the under and back surfaces merge into one, which one is called inferior, even though the vena cava is thus made to run a horizontal course. Three and a half centuries ago the father of modern anatomy described and figured the posterior surface; but to-day only a small minority of the text-books betray any knowledge of its rediscovery in recent years. The pancreas suffers in representation for a similar reason. On the whole, the plates of the viscera seem to us to be less satisfactory than those of other parts.

We took exception to the coloring of the plates in the the first volume as not being natural; we object to the hues in some of the pictures in this volume as being too faithful to certain natural conditions. The surgeon is aided by such tinting as represents the normal color in life; and the dissector is not always doomed to labor over a corpse far gone in putrefaction. Consequently, it is not merely the esthetic observer who justly complains of a picture the sight of which recalls the mephitic atmosphere of an ill-kept dissecting-room. It is doubtless difficult to portray the normal appearance of the peritoneum; but surely it is not green in health.

We are surprised at the author's use of the term "general anatomy" to cover a description of the shape, dimensions, and relations of an organ, instead of its minute structure. The latter employment requires explanation to the uninitiated; but is universal among authors, from Bichat to the present time.

The boundaries of the abdominal regions as given by Dr. McClellan may be adopted ultimately by the anatomic world, but they are certainly unusual.

The work is a good demonstration of the fact that no one method of teaching, and especially of illustrating, can meet all of the requirements of the student. Photography in many cases is unquestionably superior to pencil-drawing; but there are not a few instances in which the latter is the better from its capability of aiding the imagination by emphasizing features which are left in obscurity by the sun-picture. Generally, a faithful pictorial representation of an object is preferable to a diagram; but often the latter is an absolute essential to the beginner. We do not wish to be understood as commending the method of a certain American text-book, the only originality of which is a delirium of diagrams; but we do believe that the occasional employment of schematic and line drawings is indispensable to complete presentation. Furthermore, microscopic anatomy is nothing but a weariness of spirit when taught (or, rather, undertaken) only by verbal description, as in this work. The value of the usual text-book would be greatly enhanced by the adoption of some of the methods of our author; and the converse is equally true.

In conclusion, while, for various reasons besides its cost, we cannot expect this treatise to become a popular manual for the recitation-room or the laboratory, we predict that its many attractive features and sterling qualities will speedily make it a favorite with practitioners who have the laudable ambition to refresh their anatomic knowledge; and we trust that both author and publisher will be amply repaid for the vast labor and expense involved in the production of this great work.

A TEXT-BOOK OF MORBID HISTOLOGY FOR STUDENTS AND PRACTITIONERS. By RUBERT BOYCE, M.B., M.R.C.S. New York: D. Appleton & Co., 1892.

THE plan upon which this work is written is that followed by Professor Victor Horsley in his teaching at the University Hospital, London, and receives his indorsement in an introductory chapter to the present book. This plan is the one usually adopted in laboratory courses in pathology, and finds its fundamental principle in the critical study of the various pathologic processes as seen in different organs, and then the several changes observed in the separate organs and tissues. We are certainly in greater need of a good book of this kind, than of such as deal with the systematic or theoretic teaching of pathology.

Such a laboratory or practical treatise will require, first of all, illustrations of the highest order of merit, and a glance at the 130 colored plates of the book before us is convincing proof that its author fully appreciates the need. With one exception these plates are colored reproductions of micro-photographs, and doubtless are excellent from the artistic standpoint; but as illustrative plates intended to elucidate the text of a work on histology, they seem to us to fail utterly. Many of them are entirely worthless, the majority are indistinct, and very few of the character to be expected. It is significant that the one plate selected by the reviewer as thoroughly good proved, on subsequent examination, to be the one illustration of the book not a micro-photograph. This book is but an additional instance showing the uselessness of micro-photographs as illustrations. Well-drawn diagrams in black and white would have been much better.

Of the text itself, we may say in general that the statements are accurate and up to recent knowledge. The author has evidently given his subject careful study and presents it clearly and with force. The discussion of tumors is different from that usually presented, but unquestionably constitutes a valuable part of the work.

As offsets to these points there is too little regularity of plan in the study of different pathologic processes or of different organs; so that certain parts attain an undue prominence at the expense of general harmony. It is noticeable, too, that the chapter on methods of pre-

rhage and marked leucorrhea, which led to a clinical diagnosis of carcinoma, for which Péan, in one instance, removed the uterus by the vaginal method.

Tuberculous endometritis possesses no characteristic features. It is accompanied by profuse leucorrhea, the discharge of which frequently contains more or less caseous material; but there is nothing in its appearance to indicate the tuberculous nature of the affection. As the process invades the walls of the uterus, there is more or less hypertrophy of that organ. From the symptoms alone a diagnosis is absolutely impossible, and it is only when there are signs of tuberculosis elsewhere, or when the history of the case points to the possibility of infection from without (genito-urinary tuberculosis of the husband), that attention is directed to the possibly tuberculous nature of the disease. In some cases there are absolutely no symptoms, while in others the symptoms of the most severe forms of pelvic abscess are present. If the process be associated with tuberculous peritonitis, the latter may completely overshadow the process in the genitals. Many authors state that amenorrhea is frequently met with in these cases, but I have not found that the menstrual disturbances associated with genital tuberculosis differ from those accompanying the ordinary forms of inflammatory disease. Thus, in six of my cases, I found that menstruation was not affected in two; in two there was menorrhagia; in one, menstruation was scanty; and in the other, there was amenorrhea.

Tuberculosis of the genitals, when primary, may lead to secondary infection of other organs, and thus produce pulmonary tuberculosis, tuberculous peritonitis, or general miliary tuberculosis, and lead indirectly to the death of the patient. In other instances, whether the genital affection be primary or secondary, it may lead to death by marasmus and hectic fever, or by rupture of tubal or ovarian abscesses to general peritonitis.

DIAGNOSIS.—From what has been said concerning the clinical history of the affection, it becomes evident that, prior to the discovery of the tubercle-bacillus, it was impossible to make a positive diagnosis of genital tuberculosis *intra vitam;* and that now a positive diagnosis can only be made by means of the microscope. Accordingly, the difficulty of diagnosis varies with the accessibility of the affected part, and with our ability to secure its secretions for examination. In some instances, however, it is not difficult to make a probable diagnosis.

Tuberculosis affecting the vulva or vagina should be differentiated from a number of affections: the granulations in vaginitis granulosa, the papular and ulcerative syphilides, herpetic eruptions, hard and soft chancres, and carcinoma.

In the great majority of cases the affections named can readily be recognized, but if there is any uncertainty, a small portion of the affected area should be excised and submitted to microscopic examination.

It has already been mentioned that tuberculosis of the cervix has been mistaken for carcinoma, and the uterus removed under that supposition. This only serves to emphasize the importance of the excision and microscopic examination of small portions of the cervix in all cases before operation as a means of diagnosis.

If there be the slightest suspicion of tuberculosis of the uterus, the vaginal and uterine secretions should be examined with the greatest care for tubercle-bacilli. If the examination prove negative, the uterus should be curetted and the portions removed submitted to microscopic examination, when the histologic character of the tissue and the demonstration of the tubercle-bacilli will make the diagnosis absolutely certain. If examination should fail to yield positive results, a portion of the curetted tissue should be inoculated into a rabbit.

In very chronic cases of endometritis, which cannot be attributed to a perfectly definite cause, I would emphatically recommend the employment of the methods here indicated, and I feel confident that by so doing we would not infrequently meet with cases of genital tuberculosis that would otherwise have escaped detection.

The diagnosis of tuberculosis of the tubes and ovaries is far more difficult than when the disease affects the uterus or lower portions of the genital tract, simply on account of the difficulty of obtaining the secretions for examination.

I consider that it is impossible to make a positive diagnosis of genital tuberculosis simply by bimanual palpation.

A fairly probable diagnosis of tuberculosis of the tubes may be made, if, in addition to distinct tubo-ovarian masses, one can diagnosticate a tuberculous peritonitis. If the tubal tumor occur in a tuberculous woman, who presents no sign of tuberculous peritonitis, we shall not be able to make even a probable diagnosis, but in these cases we should always bear in mind the possibility of the tuberculous nature of the tubal disease. Lastly, if the process be limited to the tubes and ovaries, without any peritoneal or pulmonary involvement, I do not think that it will be possible to diagnosticate the affection by physical examination of the patient.

In some instances, no doubt, the examination of the vaginal secretion might reveal the presence of the tubercle-bacillus, but in the vast majority of cases the examination would yield negative results. In some cases of pyosalpinx, in which tuberculosis is suspected, Edebohls has recommended vaginal

puncture of the pus-sac, and the examination of its contents for bacilli. In one instance he was enabled to make a positive diagnosis before operating.

PROGNOSIS.—Genital tuberculosis, whether primary or secondary, is always to be regarded as a grave affection. The primary process, even if it remain limited to the genitals, always carries with it the possibility of a general infection, with its uniformly fatal termination. It also has a marked tendency to lead to the development of tuberculous peritonitis. Even if the process remain limited to the tubes and ovaries, it is always possible that it may go on to suppuration and abscess-formation, which in turn may lead to the fatal termination by marasmus and hectic fever, or, by rupture, to general peritonitis.

If, on the other hand, the genital process is secondary to tuberculosis of the lungs or other organs, the dangers mentioned are added to those of the already serious primary affection.

In rare instances the genital process may undergo conservative fibroid change, and it is possible that in some cases the deposit of calcareous material may lead to healing; but it must be admitted that these conservative processes occur but rarely, and that the usual course of the disease is one of progressive advancement.

TREATMENT.—In view of the possibility of infection from without, the necessity for prophylactic measures becomes apparent. They are especially indicated when there is any suspicion of genital tuberculosis on the part of the husband, when the dangers attending coitus should be pointed out, and abstinence recommended.

Of course, the treatment varies as different portions of the genital tract are involved, and as the disease is primary or secondary. It is also greatly influenced by the general condition of the patient, and by the various complications that individual cases may present.

Tuberculous ulcerations of the vagina and vulva are usually secondary to tuberculosis elsewhere. In a considerable number of cases the application of irritants, as tincture of iodine, iodoform, or lactic acid, is frequently followed by a total disappearance of the ulcerations; but, unfortunately, these have a marked tendency to recur, so that the effect is usually only temporary; still, in a few instances the use of such agents leads to permanent disappearance of ulceration. If the ulceration is isolated, as is sometimes the case, and resists the palliative methods of treatment, the diseased area should be excised, and the edges of the wound brought together by sutures.

If a tuberculous ulceration of the cervix be recognized, and fail to respond to conservative treatment, we should not hesitate to amputate the cervix, if we can feel reasonably sure that the rest of the uterus is not affected.

If we hope to deal with tuberculous endometritis, we should first satisfy ourselves that the tubes and ovaries are not involved; any inflammatory disease of the tubes, associated with tuberculosis of the uterus, would indicate that they are likewise involved.

If the process be limited to the uterus, we should at once thoroughly curette it and then introduce iodoform into the cavity of the uterus. If, after this, there is any recurrence of the affection, there should be no hesitation as to the propriety of vaginal extirpation of the uterus, removing the tubes and ovaries at the same time.

On account of the difficulty of diagnosis, one rarely has to face the question of removal of the tubes and ovaries when the seat of primary tuberculosis, excepting when celiotomy has been undertaken for some other indication, when their condition becomes a matter of surprise. Of course, in these cases there can be no question as to the propriety of their removal.

In secondary cases associated with pulmonary or peritoneal tuberculosis, the removal of the tubes is entirely dependent upon the general condition of the patient. In advanced cases of pulmonary tuberculosis there should be no thought of operating; but in the early stages of the disease, an operation may be attempted as long as there is any prospect of permanent recovery from the primary affection.

In cases associated with tuberculous peritonitis, we should not hesitate to remove the tubes and ovaries if possible, unless the general condition of the patient is particularly unsatisfactory (advanced pulmonary tuberculosis); for we should bear in mind the curative influence that celiotomy frequently exerts in tuberculous peritonitis and the possibility of the affection having originated in the tubes.

CLINICAL MEMORANDUM.

RESECTION OF BOTH ULNAR BONES, WITH AN EXPERIMENT IN BONE-GRAFTING.

BY JAMES KENNEDY, M.D.,
OF SAN ANTONIO, TEXAS.

A WOMAN, about twenty-eight years old, who gave a history of rheumatism in both forearms for a period of two years or more, came to see me about one year ago, complaining of rheumatic pains at and below both elbow-joints. At about the middle of either forearm, at its posterior and lateral aspects, was situated a tumor which I diagnosticated periosteal, and although no syphilitic history could be obtained, the epitrochlear and sub-occipital glands were enlarged and indurated. The tumors sensibly diminished in size under the influence of mercuric chloride and potassium iodide, in large doses; hence it is reasonable to conclude that they were of syphilitic origin.

attempts to criticise in the spirit that Dr. Northrup has done, it becomes very easy to point out what seems to be a large fatality. It is one thing to perform intubation in mild cases of beginning dyspnea, and another to do it in desperate cases of advanced diphtheria when death is imminent.

5. In two cases the tube was drawn into the bronchus, and death, of course, resulted. If Dr. Northrup had taken the trouble to refer to the original paper of Drs. Prescott and Goldthwaite, from which I quoted, he would have found these cases reported in detail, and he would have been spared the necessity of making such an extended and misinformed attack upon the operator. Permit me to call attention to one of these cases.

A child, fifteen months old was intubated with a two-year-old tube. The tube was repeatedly coughed up, and then from a three-year-old to four-year-old tube was passed and worn for some days. This again seemed to become loose, and during a quiet night was drawn into the left bronchus. It was evidently a case of paralysis and relaxation of the larynx. The second case was a similar one.

The remarks with regard to these cases merely confirm me in the belief that Dr. Northrup is not familiar with the severe class of cases of which I have been speaking.

6. In two cases the obturator broke. I am enabled to speak of one of them in which a gentle attempt was made by an experienced operator, reputed to be one of the most expert in the city, to introduce a tube. The instrument was, as far as could be seen, a perfect one, but broke near the hinge where the obturator joins the rest of the instrument, and tracheotomy was necessitated. No force whatever was used, and the operation could not have been done more skilfully or more carefully. The instrument was a new one and had never been used before; it came from a New York instrument-maker, and in the box was the card of Dr. O'Dwyer, showing, as I understand it, that the instrument had been examined and approved by him. The instrument was returned to the maker, who found a defect in the steel of which the obturator was made. The accident was a purely unavoidable one, and Dr. Northrup's extravagant language in the matter is wholly out of place.

This, I think, answers the criticism; and with regard to the other case, I am sorry to say I cannot give any detail without an extended search, but so far as I can remember the accident was a similar one.

I have answered in detail, as far as I could, Dr. Northrup's questions, because I was anxious to demonstrate the spirit in which he criticised, and the class of accidents he speaks of as inexcusable. In my paper I did not attempt as a partisan to attack intubation. I merely presented cases, and I might well have allowed the medical profession to draw their own conclusions as to the merits of the two operations.

Dr. Northrup's letter gives me an opportunity to go further, and to say something more with regard to intubation, which I am very glad to have an opportunity to say. In the first place, he avoids the main issue of my paper, viz., that intubation causes a higher death-rate for the reasons that I have given.

If one comes to the discussion of accidents, it seems to me that Dr. Northrup appears curiously and wilfully ignorant of the fact that accidents are likely to happen to the most experienced operators. Within the last three months I have seen two instances of this. In one, an operator fairly expert in the operation, who had operated in some thirty cases, and who was a man of considerable manual dexterity, utterly failed to place a tube in the larynx of a child with moderate dyspnea. I had an opportunity to examine the case with him after death, and the only explanation that could be found was a long and pendulous epiglottis.

Again, another operator who had performed a large number of intubations, and who had seen and assisted at many others, told me he believed that failures to place a tube were due to clumsiness and a lack of skill; yet within a week of the time that he spoke, in an apparently simple case, he was unable to insert an intubation-tube, and tracheotomy had to be done.

I quote these cases to show that accidents occur when one would least expect them, and I believe Dr. Northrup's assertion "that there need be no such thing as failure of the operation in the case of those who have had plenty of practice on the cadaver," is wholly unwarranted and likely to mislead the profession. There is often much clumsiness in the performance of the operation; there are many failures due wholly to lack of skill; but I beg, Mr. Editor, to call attention to the fact that failure may and does occur to those who have not only extended experience, but perfect self-confidence. It is time for these matters to be called to the attention of the general practitioner.

I can hardly believe that Dr. Northrup means what one might infer from his paper—that intubation was only an operation to be undertaken by an intubation-specialist. If this is the case it could, of course, only be done properly and competently by very few men in this country, chiefly in the larger cities. Diphtheritic croup, however, is not limited to the larger cities, and intubation has, it seems to me, been understood as an operation that, under certain restrictions, may be undertaken by the general practitioner.

In the paper that I wrote I considered it as a life-saving measure, and so far as possible drew conclusions as to its general applicability. Dr. Northrup evidently regards it in another light—as an exhibition of skill in the hands of an expert, only to be undertaken by those who are sure of the requisite skill. I, personally, should be unwilling to limit intubation to so narrow a field. It seems to me to be an operation of the greatest worth, and one which is going to play a very important part in the laryngeal surgery of the future. Its place at present is, I belive, almost wholly undetermined, and its value seems to have been very much overestimated by the partisan writings on the subject, which, so far, have constituted the bulk of the literature.

In carefully-selected cases it must have a future of great value, especially in the case of children under two years of age, as I pointed out in my paper. To condemn it as an operation for the general practitioner, as Dr. Northrup does, is, it seems to me, saying too much against intubation. To advocate it as a routine and easy operation for dyspnea in diphtheritic croup, as many writers have done, is, I believe, to place the matter in a false light. The true position of the operation and its future, it seems to me, are to be determined by a

careful and unprejudiced consideration of the results of the experience of different surgeons. I fancy that Dr. Northrup has said more than he meant against intubation, and would be unwilling to stand by the conclusions that one might draw from his paper, viz., that intubation was not to be undertaken except by an expert who had had almost unlimited experience.

In conclusion, I would call the attention of Dr. Northrup to the following paragraph, which occurs at the end of my original paper, and which contains what I have to say upon the subject:

"When, however, an operation shows a recovery percentage of 9 per cent. less than the operation that it is intended to supersede (tracheotomy), in presumably the same class of cases, it becomes time to criticise it, and, if possible, to find the source of the greater fatality. . . . I would suggest that the cause of this increased fatality after intubation in severe diphtheria lies in the imperfect drainage, and the limited amount of nourishment that it is possible to give."

I am, very respectfully yours,

ROBERT W. LOVETT, M.D.

379 BOYLSTON STREET, BOSTON, MASS.

THE METRIC SYSTEM.

To the Editor of THE MEDICAL NEWS,

SIR: It seemed scarcely worth while at the time to notice a reply to my letter on the metric system, which took so limited a view of the subject as that of Dr. Summers, in THE NEWS of November 12th, when it was very certain that a further and more general vindication of the system would be attempted, as has now appeared in your editorial of December 10th, and to which permit me to make the following rejoinder.

It is by no means strange that the metric system should provoke hostility, in view of its extreme intolerance, and of the fact that, not content to let it continue side by side with other and older systems, to win its way as best it could by its own merits, its advocates are continually invoking legislation to their aid in forcing it upon the people, to the entire exclusion of every other system. As long as it maintains this attitude it cannot fail to meet with the most strenuous opposition. Dr. Summers is entirely wrong in his supposition that there is no intention to interfere with the rights of individuals, and to oblige them to write their prescriptions in the metric system. On the contrary, this is just what its friends are striving to accomplish, not only in the matter of prescriptions, but in all other business transactions besides. In your editorial you refer to the circular of the "New Decimal Association," but as its statistics are gotten up by interested parties, such testimony is to be taken with reserve. As long as Great Britain and the United States have what the rest of the world want, there need be no fear of a loss of trade on account of the system of weights and measures used any more than on account of the language.

To explain American apathy toward "decimal reform" (*alias*, the metric system), you say that "the arithmetical problems of the great majority of persons are almost entirely limited to money matters," in which we already have the advantage of decimals. Is this true? Or does not everyone who goes to market for the necessaries of life have as much of an arithmetical problem to solve regarding the quantity as regarding the value of his purchases? Has he not to calculate length, weight, and volume as well as money? But how do you explain British apathy, which seems to be quite as marked as our own, yet with no decimal currency to account for it? Depend upon it, this apathy has better grounds for its existence than you have here assigned for it.

You say the statement that the metric units are inconvenient in size "betokens ignorance of, or indifference to, the truth." As it was I that made that statement in my letter, I shall be obliged if you will point out, explicitly, wherein I have shown my ignorance of, or indifference to, the truth. You follow up this by a commendation of earth measurement as a basis for a system of weights and measures. This, of course, is good so far as it goes, but surely there is another element besides earth measurement which must enter into any thoroughly scientific as well as practical system of weights and measures, and that is man measurement. Surely the size and strength and convenience of the being who is to use the weights and measures are of as much importance to be considered in their establishment as anything else. And it is just here that one of the great defects of the metric system is most apparent; its units bear no relation whatever to man's dimensions, and it is for this reason, as I asserted, that they are inconvenient. The yard, the foot, the hand, the inch, are approximate human measurements, and so have been found convenient and appropriate, whereas the meter and its divisions, not being so adjusted, are either inconveniently long or preposterously short.

But further, while, as you say, earth measurement affords a natural and appropriate basis for a system of metrology, the line wanted should not be a curved line, neither the meridian of Paris, nor any other meridian, nor yet the "mean of all possible meridians," but a fixed and straight line, of which our planet contains but one, its axis of rotation, a line in every respect adapted to the purpose required. And when we find, as was pointed out by Sir John Herschel, that our inch is within $\frac{1}{1000}$ of being commensurate with this most natural of all bases, we see that we have in our linear measure, possessing, as it does, both the requisite elements of earth and man commensurability, at least what is far more nearly a perfect unit than the metric unit or any of its divisions.

Far more could be said on this subject than I have brought forward, but this letter is already long enough. My object is not controversy, but to bring out, if only in a partial and imperfect manner, the other side of this question, which is so seldom heard, and if possible to induce others to inquire into it. It is not right that any system should be so largely advertised for its excellences and nothing be said of its defects. It has obtained a foothold in our laboratories that forces the profession to use it to some extent whether they will or not, but if we are to do so, let it be in the full knowledge that, while we consider ourselves too scientific to use the foot and the inch of our forefathers, we have betaken ourselves to a system that measures straight lines with a curve, and a curve whose dimensions were incorrectly determined; in a word, a system whose standards are neither straight nor true.

JOHN FORREST.

10 KING STREET, CHARLESTON, S. C.

[We judge that our readers have probably "had enough" upon this subject, at least for the present.—ED. MEDICAL NEWS.]

NEWS ITEMS.

The Tri State Medical Association of Alabama, Georgia, and Tennessee, at its recent meeting elected the following officers: President, Dr. Richard Douglass, of Nashville, Tenn.; Vice-Presidents, Dr. Robert M. Harbin, of Calhoun, Ga.; Dr. R. M. Cunningham, of Birmingham, Ala.; Dr. Y. L. Abernathy, of Hill City, Tenn.; Secretary, Dr. Frank Trester Smith, of Chattanooga, Tenn.; Treasurer, Dr. W. C. Townes, of Chattanooga, Tenn.; Recorder, Dr. W. L. Gahagan, of Chattanooga, Tenn. The next meeting is to be held at Chattanooga on the third Tuesday in October, 1893.

Railway Surgery at the Pan-American Medical Congress.—A Section of Railway Surgery of the Pan-American Medical Congress has been organized, with Dr. C. W. P. Brock, of Richmond, Virginia, as executive president.

At the eleventh annual meeting of the Wabash Railway Surgical Association—the first organization of the kind—Dr. C. B. Stemen, of Fort Wayne, was unanimously requested to prepare a paper on "Organized Railway Surgery," and read the same before the Section on Railway Surgery of the Pan-American Medical Congress.

The Antiseptic Dropper.—Dr. Gould thanks a correspondent for information that the little device described in THE NEWS of Dec. 3, 1892, p. 635 (and believed to have been a novelty) had been previously in use in Europe and in Japan. It seems strange that a device so excellent and handy, like many other and more important things, should have to be independently rediscovered, and that it should not have earlier come into general use in America.

Philadelphia Hospital.—At a recent meeting of the Department of Charities and Corrections the entire medical staff of the Philadelphia Hospital was reëlected. In addition, six new places were created, to which were elected respectively: Dr. J. William White, in surgery; Dr. Judson Daland, Dr. F. A. Packard, Dr. Samuel Wolfe, and Dr. Julius L. Salinger, in medicine; Dr. W. M. L. Coplin, in pathology; and Dr. Alfred Stengel, registrar in medicine.

Chicago Gynecological Society.—At the annual meeting, held October 28, 1892, the following officers were elected: President, Dr. E. J. Doering; Vice-Presidents, Dr. Fernand Henrotin and Dr. Franklin H. Martin; Secretary, Dr. Henry Parker Newman; Treasurer, Dr. A. H. Foster; Editor, Dr. W. S. Christopher.

Pubeotomy in Ireland.—It is announced that on November 22d last Dr. W. J. Smyly, Master of the Rotunda Hospital, Dublin, performed a pubeotomy, the first in the United Kingdom since 1782. At the time of report, nine days after the operation, mother and child were doing well.

The Biography of Ephraim McDowell, M.D.—We have received a letter from a correspondent stating that a number of persons have failed to receive copies of the *Biography of Ephraim McDowell, M.D.*, by Mary Young Ridenbaugh, for which advance payment had been made. Can anyone give us any information upon the subject?

The Culture of Diphtheria-bacilli in Hard-boiled Eggs.—Dr. Billings, of the Patho-biological Laboratory of Lincoln, Neb., writes us that the method described by Dr. Johnston (THE NEWS, December 10th) has been in use by him since 1886.

Stellwag v. Carion, who has been Professor of Ophthalmology at Vienna since 1873, will celebrate his 71st birthday on coming January 23d. Preparations are making for an elaborate observance of the event.

A New Clinic for Hydrotherapeutics has been established at Vienna, and placed under the direction of Professor Winternitz.

Dr. G. E. de Schweinitz has been elected Clinical Professor of Ophthalmology in Jefferson Medical College.

BOOKS AND PAMPHLETS RECEIVED.

A Consideration of the Relative Advantages of Colotomy and Sacral Resection for the Formation of an Artificial Anus. By E. E. Montgomery, M.D. Reprint, 1892.

Operative Treatment of the Deformities Resulting from Infantile and Cerebral Spastic Paralyses. By DeForest Willard, M.D., Ph.D. Reprint, 1892.

An Address in Medicine. By J. H. Musser, M.D. Pamphlet, 1892.

Gonorrhea and Its Treatment. By G. Frank Lydston, M.D. Detroit: George S. Davis, 1892.

The Pathology of Pernicious Anemia. By J. P. Crozer Griffith, M.D., and Charles W. Burr, M.D. Reprint, 1892.

Mid-systolic and Late-systolic Murmurs. By J. P. Crozer Griffith, M.D. Reprint, 1892.

The Treatment of Hypertrophic Rhinitis by Electrolysis. By W. Scheppegrell, A.M., M.D. Reprint, 1892.

Ninth Report of the Committee on Lunacy of the Board of Public Charities of the Commonwealth of Pennsylvania. Harrisburg: Edwin K. Myers, State Printer, 1891.

Cure Radicale des Hernies avec une Étude Statistique de deux cent soixante-quinze Opérations et 50 figures intercalées dans le texte, par Le Just Lucas-Championnière. Paris: Rueff et Cie, 1892.

Die Lehre von den Naseneiterungen mit besonderer Rücksicht auf die Erkrankungen des Sieb- und Keilbeins und deren chirurgische Behandlung, mit 5 Abbildungen. Von Dr. Ludwig Grünwald. München und Leipzig: J. F. Lehmann, 1892.

The Differential Diagnosis of Rubeola and Rubella, with Especial Reference to the Enlargement of the Glands of the Neck. By J. P. Crozer Griffith, M.D. Reprint, 1892.

Two Cases of Conservative Surgery. By F. Robert Zeit, M.D. Reprint, 1892.

Adenoid Vegetations of the Pharynx a Frequent Cause of Deafness in Children; Their Removal. By S. Latimer Phillips, M.D. Reprint, 1892.

Recent Progress in Diseases of the Brain and Nervous System. By F. Robert Zeit, M.D. Reprint, 1892.

Postscript to Essay Sixty. By William Sharp, M.D., F.R.S. Pamphlet. London: George Bell & Sons, 1892.

The Early History of Instrumental Precision in Medicine. By S. Weir Mitchell, M.D., LL.D. New York: "The Century" Company, 1892.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, DECEMBER 31, 1892. NO. 27.

ORIGINAL ARTICLES.

AMBLYOPIATRICS.[1]

BY GEORGE M. GOULD, A.M., M.D.,
OPHTHALMOLOGIST TO THE PHILADELPHIA HOSPITAL.

THE fact that no name exists for the therapeutics of amblyopia in the cases in which the defect is ascribed to "disuse," and coëxisting either with squint, muscular insufficiency, or a high degree of ametropia and probably of anisometropia, leads to the astonishing fact that the desire or the attempt to cure amblyopia does not exist on the part of ophthalmologists. If a child with one weak and deformed leg is brought to the orthopedic surgeon, he does not say, "Oh, well, the child has one good leg, let it get on with that alone." If a finger or a hand is injured, does a surgeon ignore its needs and congratulate himself and the patient that the rest of the fingers or the other hand is all right? But it is a literal truth that an argamblyopic eye (*i. e.*, one amblyopic from disuse) brought to the oculist is dismissed without care and without attempt at cure. In no text-book with which I am acquainted are either principles or rules laid down to govern the treatment, and no hint is given that any treatment is desirable. Not only so, but positive instructions are laid down that, carried out, prevent the weakened eye from ever regaining its lost power. It is as if the surgeon should say of a lame leg: *Strap it up out of the way; it can't work with the other, or as well as the other; let it go.* Listen to this extract from the latest text-book on ophthalmology, fresh from the press:

IN ANISOMETROPIA WE GIVE THE SAME GLASSES FOR BOTH EYES, OR CORRECT ONLY ONE EYE AND PLACE A PLANE GLASS BEFORE THE OTHER.—*Fuchs, Text-book of Ophthalmology.*

I set this sentence out in capital letters, as displaying as much ophthalmologic error and therapeutic sin as could easily be gathered into so many words. Another popular treatise puts it this way: "For the class of patients whose ocular discrepancies [*anisometropia*] are so great that they always use only one eye, nothing is to be done save to aid as perfectly as possible the working member in case it needs assistance. The other is to be left to purely ornamental functions."

Any number of such quotations could be added were it necessary to show that the established conviction and practice of the ophthalmologic profession is not only to completely ignore the need and the duty of treatment of argamblyopia, but even to so further handicap eyes thus afflicted by measures of anti-therapeutics as to render recovery impossible, and even to increase the defect.

In square and absolute opposition to this I contend that every amblyopic eye is a sick eye, and that it is the physician's first duty to cure, whether it be eyes, or legs, or bodies.

Our impotent willingness to permit such a lazy method of non-treatment is a distinct reproach and discredit to us. It is simply untrue that patients with anisometropia will not permit a proper and helpful correction of each eye. In some 2500 cases occurring in private practice, I have found none such except two or three who had simple myopia in one eye and approximate emmetropia in the other. But, for obvious reasons, in such cases there is no amblyopia, and they are, therefore, out of the count. Of course, correction of anisometropia may be inconvenient and even uncomfortable to the patient for a short time, but could one expect the abnormal habits and weakened organs of a lifetime to resume normality in a few days? Do orthopedic surgeons thus treat the consequences of spinal curvature or talipes? Instead of the supine let-alone policy we should seek to save and to heal and to strengthen. Instead of non-response to treatment and inability of the patient to wear binocular correcting glasses, I have, in fact, been delighted and astonished to witness how soon response comes, and how short or non-existent is the period of discomfort. The weakened, almost blinded eye, soon reacts to the spur of kind, intelligent helpfulness, and, as month by month one watches these eyes improve and gather strength, one feels the pride and pleasure of the true physician in his true work. I have never failed to find such reaction even in the most hopeless cases of argamblyopia.

And first, a prefatory word as to the new coinages that, with some trembling, I have ventured to strike: The needed word *amblyopiatrics*, or the therapeutics of amblyopia, explains itself, but it seems surprising that scholarly ophthalmologists should have continued to use the tautologic barbarism, *amblyopia exanopsia*. According to its

[1] Read before the Philadelphia County Medical Society, December 28, 1892.

Greek roots amblyopia can mean nothing but *dimness or dulness of the eyes or of vision;* and *ex-anopsia* can mean only, *from absence of sight.* The combined term, therefore, is literally and absurdly enough this: *dimness of sight due to want of sight,* or, *lessened visual power from failure or absence of visual power.* There is no hint in the etymology of the supposed meaning, *amblyopia from disuse (of the eye).* It seems clear that we should drop such a term and make use of some one that will express what we mean and desire. In Greek we have ἔργον, meaning *function,* ἐνέργεια, *activity of function,* of which the opposites are, ἀργός and ἀργία. A well-formed and significant compound for *disuse-amblyopia,* would, therefore, be *argiamblyopia,* contracted naturally to *argamblyopia.*

I have no desire to enter into the vexed question as to whether the muscular anomaly or ametropia precedes and causes the amblyopia, or whether the reverse is the case. When the patient appears in the oculist's office, the two facts are (at least often) presented at the same time, and our task is at once the very practical one of therapeutics, the question of etiology being of minor or theoretic importatance.

There is, however, a very suggestive illumination thrown back upon the question of etiology by the practical results of intelligent and persistent therapeutics. When large numbers of amblyopic eyes recover their lost acuteness of vision by means that permit and necessitate their functionalization, the dogmatism of authorities and the negligence of oculists receive a suggestive comment amounting to refutation, both of the theory and of the sadly common resultant practice, that the amblyopia is cerebral or that it is the causal agent of the muscular or ametropic anomaly. Almost without exception, my cases teach me that amblyopia is argamblyopia. (It goes without saying, of course, that amblyopia due to fundus-lesions and media-lesions are out of the count.) And when such improvement of vision follows the removal of the ametropic or heterophoric hindrance it, *ipse facto,* justifies the acceptance of the theory of effect-amblyopia implicit in the word coined.

But whether the one theory or the other be the true one, the therapeutic sin of not attempting to bring back the lost power of these handicapped and half-ruined eyes, is a sin that cries out against us. The number of persons going about, and going on to the age of cataract-possibility, with such eyes, is surprisingly large. Whether with growing practice one sees more patients, or whether such argamblyopic patients, neglected by others, drift into one's hands, one is amazed at the frequency of the fact, and that instead of heroic effort to save, there has usually been pursued a no-policy of the most atrocious and let-alone indifference. Now this policy of *laisser-aller* is to me incomprehensible, unethical, antimedical, and impolitic, and the object of this writing is to protest against it and to offer proofs that it is in all these ways wrong. "Far from telling me how to save the bad eye, my doctor never suggested that it could or need be saved"—that gives the hint of the impolitic policy. "I now have cataract in my best eye, and the other has been no good for many years"—that should deeply sting the heart of the negligent physician—if he could hear it.

The practice may partially be a conscious or unconscious result of what I believe the false teaching that the amblyopia is cerebral or idiopathic, or is the cause of the coëxistent strabismus or insufficiency, or again of the still more execrable teaching to correct the ametropic defect of one anisometropic eye, leaving the other to go to the dogs.

The functionalization of argamblyopic eyes consists, of course, in three things: 1. The correction of the ametropia; 2. The reinstatement of the muscular balance, if imbalance exists; 3. Exercise.

As to the correction of the ametropia, there are a number of peculiar difficulties and problems. These each refractionist will overcome and answer according to his teaching, his habit, or his intelligence. Assuredly no hard-and-fast rule will suffice, nor can such a rule be even approximately formulated. Each case will be a study in itself, requiring the most accurate discrimination of judgment, and the finest delicacy of testing. In an eye of which the neurologic elements and the cerebral centers are certainly weakened and partially atrophied, the failure to hit exactly the right kind, degree, or precise proportion of help required, foredooms at once to failure. The very breath of life in such an eye is trembling between endeavor and renunciation. A shade of over-correction or of under-correction, a slightly misplaced axis of astigmatism, a misplaced or maladjusted spectacle, a touch at the wrong place, the lack of a wee-bit of help at the right place—*anything except the right thing*—smothers the little remaining power of recuperation, and proves a tiny load too great for the tiny forces to lift. We are here dealing with infinitesmals, and the keenest and swiftest perception will win where a less subtle discrimination will fail.

It is evident that such eyes must be nursed and encouraged, as it were, into convalescence. Frequent re-testings will be required; frequent adaptations to the changed conditions sure to follow; watchful care if one weak part of the complex system fails to respond or temporarily gives way; constant readjustment of the spectacles following and stimulating the renascent powers, and meeting them with the precise modicum of lessened or increased aid—these and many such methods of guiding and guarding,

must be kept in mind until full health is restored, and the convalescent eye enjoys and shares the labors of its fellow.

In the same way the reëstablishment of muscular coördination, still further complicating the problem, will be brought about according to the peculiarities both of the case and of the physician.

But these questions having been settled, gymnastics will remain as the very heart of the matter and crux of the difficulty. An eye the visual power of which has from disuse fallen to 20/C, let us say, and reduced to only the temporary holding of the image of Jaeger 14 or 18, will not participate in binocular vision, however perfect the image formed on the retina, or however balanced the muscles. It must be exercised, and gently forced to function. It is clear that the good eye must be temporarily thrown out of use, and the weakened brother put to work alone. The kind and the amount of exercise will again depend on the retained visual acuteness of the eye to read print, large or small, and the retained power to continue this for a longer or a shorter period of time. Here again appears the necessity on the part of the physician of careful estimation by a trained judgment to give the proper instructions.

But the final success will depend upon the patient's persistence, patience, and coöperation. This cooperation will only be certainly gained by making him (or, if a child, his parents) thoroughly understand just what is desired, and the full significance of it all. To him it should be explained in detail and fulness, that exercise only develops function; that as years go by, non-exercise will still further and hopelessly ruin the eye; and that as age approaches, the possibilities of danger to the good eye (always doubled if there be but one!) are greatly increased by the liability of cataract, of inflammation, of injury, etc.

The method of monocular gymnastics in these cases will depend upon the interest of the patient, the age, occupation, etc. In children too small to wear glasses, or to wear the blinder willingly, I keep the good eye under continuous mydriasis for weeks, or even for a month or two. Some ladies prefer holding the fan, a bit of paper, etc., before the sound eye while exercising the weaker one. I have, during the past year or two, ordered the patient to get a disc of black rubber fitted with two hooks, so that it may be hung on the spectacle-lens in front of the good (unclosed) eye. Such discs are supplied by my opticians, who have prepared them in accordance with my request. The patient is to read print of a size that can be easily distinguished, and only so long as signs of positive discomfort or weakness do not appear. Some patients can at first hold the image for but a few seconds. The shorter the necessary duration of such periods the more frequently they should be undertaken. Some patients can read or work with the single eye for an hour or two without trouble. The plan that has proved of most service, and has been productive of the best results, is to use "the blinder" when eating the meals. If living at home, the extra blinder is left at the plate as a reminder, and the practice is excused by friends. It gives an hour or more of varied and easy exercise without loss of time or the annoyance of special attention to the matter. I have a patient, a jeweler, who works at his bench with his blinder, in all one or two hours a day, and whose power and vision have been greatly improved thereby.

A certain proportion of cases do not report; a few get tired, or are indifferent to the matter. The following cases illustrative of the method and of its results may be cited:

CASE I.—Mrs. H., nineteen years of age, has had severe and continuous headache from early childhood, with gastric trouble, malnutrition, etc. Natural vision is R. 20/XX; L. 10/CC. Mydriatic refraction =

R.—sph. 0.25 D, ◯+cyl. 0.50 D, ax. 90°=20/XX+.
L.+sph. 2.50 D, ◯—cyl. 5.50 D, ax. 180°=20/XL.
With muscular balance.

After the return of the accommodation, and with the proper correcting glass, the left eye could read only Jaeger 14 at twelve inches.

Monocular exercise was ordered. In three months all headache had disappeared, the distant vision of the left eye, both at near and distant range, equalling that of the right eye.

CASE II.—Miss M., aged twenty, had the following defect:

R.+sph. 0.75 D, ◯+ cyl. 0.75 D, ax. 1.25°=20/L.
L.+sph. 0.50 D, ◯+ cyl. 3.50 D, ax. 1.15°=20/C.

Careful instructions as to ocular gymnastics has improved the vision in four months to R. 20/XX; L. 20/L +.

CASE III.—Mrs. R., aged fifty-one, had the following refractive error:

R. 20/XXX + sph. 0.37 D, = 20/XX.
L. 10/CC + sph. 3.00 D, ◯ + cyl. 1.00 D, ax. 90° = 20/CC.

With the left eye the patient could read only the large-print "Scripture leaflets" hung in rooms—the only thing I could get for her of sufficiently large-sized letters with which to exercise the eye. One year later, after more or less exercise of this eye alone, she was able to read Jaeger 12, slowly.

CASE IV.—Miss R., aged twenty-five, under homatropine was found to have the following error of refraction:

R.—sph. 3.00 D, ◯—cyl. 0.50 ax. 150°=20/LXX+.
L.—sph. 7.00 D, ◯—cyl. 0.50 ax. 180°=20/LXX.

Eight months later the vision was: R. 20/XX? L. 20/XL.

CASE V.—Mrs. K., aged forty-five, had 20/XL vision in the right eye, with a compound myopic

astigmatism twice as great in this eye as in the left. There were six degrees of exophoria. Proper correction of all ametropia and insufficiency with monocular exercise relieved the life-long sick-headache, etc., and in five months the vision of the left was brought to the normal.

CASE VI.—Miss S., thirty-five years of age, had had frontal headaches all her life, and, with much near-work, ptosis of the left lid. Refraction was:

R.— sph. 1.50 D, ◯ + cyl. 5.00 D, ax. 105° = 20/LXX.

L.+ cyl. 1.25 D, ax. 80° = 20/XX.

Five months later, after the monocular course of gymnastics, all headache and ptosis had disappeared, and the vision of the right eye was 20/XX?

CASE VII.—Mr. P., twenty-five years of age, was found to have the following refraction:

R.— sph. 0.25 D, ◯ + cyl. 1.00 D, ax. 125° = 20/XX.

L.+ sph. 0.75 D, ◯ + cyl. 3.00 D, ax. 180° = 20/LXX.

He had been wearing a plane glass. After mydriasis had passed off he could, with proper correction, barely read with the defective eye Jaeger 10. Three months later he read Jaeger 4, with ease.

CASE VIII.—Miss M., forty-six years of age, gave a history of a lifetime of sick-headaches, once or twice a week, with anorexia, anemia, etc. She was wearing:

R.— sph. 3.00 D, ◯ — cyl. 2.25 ax. 180°.
L.+ sph. 0.75.

This had been given her for constant use, although her age was forty-six, and she was employed at writing all day. I found that her refraction was:

R.— sph. 2.50 D, ◯ — cyl. 5.00 D, ax. 165° = 20/LXX.

L.+ sph. 0.37 D, = 20/XX.

Hyperphoria of 3°.

A few months after correcting the ametropia, presbyopia, and hyperphoria, with monocular exercise of the right, the vision in that eye had improved to 20/XL, and all the reflex symptoms mentioned had disappeared.

CASE IX.—A little girl of nine was greatly afflicted with night-terrors, somnambulism, headache, anorexia, nervousness, etc. Her refraction was as follows:

R.+sph. 0.75 ◯+ cyl. 5.00 D, ax. 100°= 20/LXX.
L.+sph. 1.00 ◯+ cyl. 5.00 D, ax. 85°= 20/C.

The blinder was ordered for the right eye, with daily exercise of the left alone in reading large-print toy-books, in playing, etc. The right eye soon recovered a normal acuity, but it took nearly a year of watchful care and exercise to bring the left to 20/XX?

CASE X.—Mrs. A., has had constant frontal headache for the past five years, culminating in paroxysms of sick headache every few days. When a girl at school she had "numb spells," "blind spells," etc. I found:

R.+ sph. 3.50 ◯ + cyl. 1.00 ax. 150°= 20/CC.
L.+ sph. 1.00 ◯ + cyl. 0.75 ax. 150°= 20/XX.

Persistent exercise with the blinder brought progressive increase of visual acuteness and power. The reading ability descended through all the sizes of letters from Jaeger 18 to Jaeger 8, and from ability to hold the image for only a few seconds, until now, seven months since beginning, she can read ordinary print with the right eye for a half-hour, and distant vision at the last visit was 20/LXX, with improvement still in progress. The headache, anorexia, ill-health, etc., have entirely disappeared.

CASE XI.—A girl of ten years of age, anemic, with ocular and forehead-pain, was refracted on April 16, 1892:

R. 20/LXX + sph. 1.00 ◯ + cyl. 0.25 ax. 90° = 20/XXX.

L. 20/CC + sph. 1.25 ◯ + cyl. 0.37 ax. 90° = 20/LXX.

With esophoria.

With the prescribed exercise of the left eye, the vision in six months had reached 20/XXX, and will doubtless soon be equal to that of the other.

CASE XII.—A lad of seventeen, with a high degree of compound hyperopic astigmatism in the right, and 20/LXX vision, while the left had perfect vision, and a low degree of the same refractive error. The blinder treatment has brought vision in the right eye to 20/XX? in six months.

CASE XIII.—The last case I shall refer to is an instructive one. A gentleman of forty-six years has had severe ocular trouble and headache all his life, but for the past twelve years, these and other symptoms have been excessive, and he has reason, if he but knew it, to preach some useful lessons to ophthalmic specialists. One of these gentlemen, who prides himself on prescribing by ophthalmoscopic examination alone, fitted him with glasses twelve years ago, but with the most heroic endeavor he could not wear them. Vertigo was at this time, and for six years, so pronounced that it was a source of daily wretchedness. Then came the turn of the graduated tenotomist, but the vertigo was worse and mental confusion became so great that pronounced cerebral disease was diagnosticated by physicians. He feared insanity, and was so haunted by suicidal mania that he had to take daily precautions to obviate the thought and the circumstances that might lead to its execution. This went on for years. A firm will has kept the upper hand through all these years. The patient describes his symptoms as "panic-feelings and palpitation of the brain," with extreme nervousness and nausea. The headache has been less of late. Lastly, a famous oculist told him to go to an optician and get whatever glasses should be given to him there. These he has been wearing for reading—what little he can do! They are simple plus spherical 3.00 D lenses, the same for each eye!

After hours of careful work I find his true refraction to be:

R.+sph. 2.00 D,◯+ cyl. 2.00 ax. 40°=20/XL.
L.+sph. 1.50 D,◯+ cyl. 1.00 ax. 90°=20/XXX+.

With some exophoria and hyperphoria.

With the right eye alone he can hold an image of

Jaeger 10 but a second or two, the letters then "jump" and fade.

When one thinks of the lifetime during which the poor eyes and the cerebral centers of the last case, for example, have struggled and begged for a bit of intelligent help; when one analyzes the peculiar defect that would not let either eye renounce vision; when one considers the fact that a strong healthy masculine will has fought against this frightful evil, and preserved its defective mechanism so well; or what would have been the result in a woman—when one ponders over these and many such related things, one is pained with sympathy, and indignant at the failure to help.

The age of the patient, of course, has a great deal to do with success of treatment in all these cases, and one fact stands out with clearness: the younger the age at which the treatment is begun the better. Reaction is prompt in the young, and every added year of failure, and wrench, and wreck, makes the task ever more difficult.

I have had something like fifty of these cases, and many had previously passed through the hands of others unbenefited. It would therefore appear that the duty to "fight for a bad eye" is at present not at all recognized. Every such case is pathetic with dumb pleading for a simple bit of help that it should be at once our highest duty and privilege to give. Moreover, to prevent disease is even greater than to cure it, and if taken early in life in no branch of medicine is intelligent prevention of intolerable evil so possible and so beautifully resultful as in painstaking and skilled refraction-work.

TOBACCO AS A CAUSE OF HYPERTROPHY AND DILATATION OF THE HEART: "THE TOBACCO-HEART." WITH A REPORT OF CASES.

BY W. CARROLL CHAPMAN, M.D.,
OF LOUISVILLE, KY.

TOBACCO has of late been brought forward so prominently by those who have studied its effects on the human system, as a cause of disease directly and indirectly, but particularly as a causative agent in complicating different diseases, that further investigation on this subject is highly desirable. The phrase "tobacco-heart" is, of course, not without its meaning, and yet it is so vague that its use is often forbidden by the thorough diagnostician, because it implies none of three distinct conditions that may exist as a cause of the use of tobacco.

Having on different occasions met with cases of heart-trouble that were dismissed with the diagnosis of tobacco-heart, and with only the instruction to stop the use of the article, I naturally looked for literature with the hope of becoming more enlightened on that subject. Although reference could frequently be found to the tobacco-heart, I could find no description or report of a case, with the treatment. Knowing the decided effect on the circulation of this article, as seen in the cases of tobacco-poisoning, I made a report on the subject before the Mississippi Valley Medical Association in 1891, and realizing how unsatisfactory was the literature in this line, I determined to begin observations, the results of which it is the object of this paper to report.

Appreciating the strong hold that tobacco has on the American people, even on the medical profession, I am aware that any investigation that points to the baneful effects of its use will encounter the prejudice of the tobacco-user, and at times be met by the assertion that he has used it for years without any apparent harm. To this I shall only reply that I am not reporting his case, but the cases of those who have undoubtedly suffered permanent injury. In so doing, ample time has been taken. In no case has the patient been under observation for less than twelve months, and two cases were studied longer—eighteen months and two years respectively. In each case it has been frequently noticed that the symptoms have abated, with more or less actual improvement in the heart-beat, upon the withdrawal of tobacco, and have recurred within from one day to several weeks after its renewal.

CASE I.—M. K., aged thirty-one years, an unusually energetic person, called February 20, 1892. After some extra exertion the patient had felt a sinking sensation, had staggered, but was able to reach the bed before falling. He had never lost consciousness entirely. The pupils were contracted; the mouth open. There was considerable effort in respiration, which was rapid—about 30 to the minute. The hand was over the precordial region, to which sharp pains were referred. The pulse was very feeble, irregular, from 100 to 104 per minute; the extremities were cold and clammy. Auscultation showed the heart-sounds to be weak and rapid, the first and second sounds alike. I gave a hypodermatic injection of nitro-glycerin and atropine; ordered warm applications to the extremities, sinapisms over the heart, and perfect quiet. On February 21st, by measurement, the heart showed slight hypertrophy; the apex-beat in the sixth intercostal space, about one inch from the nipple line. Several months previously I had seen this case in a similar attack, and I obtained the following history: The man had used tobacco since his eighth or ninth year. His first attack occurred when he was about eighteen years old, and others have followed at intervals of from three months to two years since that time, the intervals growing gradually shorter and the attacks severer. Shortness of breath always followed much effort, and occasionally pains over the heart that prevented the finishing of the task. Believing tobacco to be the cause, I gave instruc-

tions that it be stopped, and that digitalis be administered for a few days. Relief followed. The use of tobacco was begun again two or three weeks before the attack described. A few months later another attack followed the use of tobacco. On October 5, 1892, I examined the patient again, five months after the tobacco had been discontinued, and there had been only one slight attack during that time, and to this slight attention was paid. There was very little if any change in the hypertrophy of heart, but auscultation showed improvement in the heart's action; the first and second sounds were more nearly normal, and the beats 80 to the minute, the patient sitting.

In reporting Cases II and III, I shall be as brief as possible, those points only being emphasized in which they differed from Case I, the symptoms being so nearly the same in each case.

CASE II.—M. T., aged thirty-nine years, has used tobacco since nine years of age. Besides the symptoms of Case I, she had with each attack pain in the abdomen, centering at the umbilicus, and was at times entirely unconscious. The pulse-beat was almost imperceptible. The first and second heart-sounds were precisely alike, with a longer period than normal from the first to the second sound; the action was rapid and irregular. I could not measure the heart satisfactorily on account of the patient's fleshiness, but I could clearly detect hypertrophy. I had the patient under notice for two years, during which time she never stopped the use of tobacco longer than two or three weeks at a time, though reducing the amount greatly. Indulgence in an increased amount for a short time would result in an attack. On September 29, 1892, she had another attack, and denied that she had used tobacco, but the husband told me the next day that snuff had been heavily substituted. When told that this was the same thing, she promised to stop. On October 5th she claimed to be using the smallest quantity of tobacco, and was really improved. The heart-beat was slower, firmer, and more regular, though, of course, hypertrophy and dilatation existed.

CASE III.—V. M., aged forty-one years, consulted me on May 30, 1892. She had used tobacco and coffee since nineteen years old. I found the patient in the same condition as the first case reported. I had seen her in a similar attack six months previously, and had ordered the use of tobacco and coffee to be stopped. The latter was withdrawn, but the former only for a week or so, then used in reduced quantity. At the time of this attack the pipe was being used incessantly. For several days the heart had been thumping and beating irregularly, and upon rising the patient would reel and stagger; sharp pains were experienced at times. The pupils were contracted; the tongue flabby, with several fissures. The same treatment was instituted as in the first case, with strophanthus added. Improvement was gradual. Later the patient claimed that she could not rest or sleep without using a little tobacco. Under the reduced amount she was free from attacks, but hypertrophy increased, and it is only a question of time when the broken compensation will come on again.

On October 5th, comparing her case with the first and second cases, I found that it differed from these as regards the heart-beat, which was slow—68 to the minute—full and strong. The apex-beat was below the sixth intercostal space and near the nipple line, the impulse strongly marked. Continual pain in the precordial region, which I believe would be arrested by stopping the use of tobacco.

During the last eighteen months eight or ten additional cases have come under my observation and treatment, suffering from the effects of tobacco upon the heart, with the symptoms varying in intensity from arhythmia to the severest of the cases reported, but only the three are reported, because they afforded sufficient observation to arrive at a positive conclusion as to cause and effect.

Reviewing these cases, we see three conditions—arhythmia or allorhythmia, hypertrophy, and dilatation—which manifest themselves after the prolonged use of tobacco. These symptoms invariably disappear, or are alleviated, according to the existing state of the heart, when the tobacco has been withdrawn. Surely, then, tobacco must be a causative agent, either directly or indirectly, or both, in their production. How is this so?

Tobacco is a *motor-depressant*. Most of us are familiar with the paralyzing effect of the first cigar, or "chew," and we know how the system gradually becomes inured to its use. On some, after a short time, tobacco has apparently no hurtful effect. This number would, we believe, by careful chest-examination be reduced to a minimum, as has been fairly demonstrated by examinations at Yale College of the candidates for the boat crew and ball teams (see THE MEDICAL NEWS, July 11, 1891). In others the function of the stomach is disturbed directly,[1] the nervous system indirectly; and possibly by a direct effect upon the pneumogastric, the heart-beats are increased in number. As a result of the dyspepsia and disturbed innervation we find arhythmia. The trouble may go no further than this, and is invariably arrested if the tobacco be discontinued. On the other hand, if it is continued, the irregular action of the heart, which is quite an accommodative organ, may cause its growth, particularly of the left ventricle. Again, even when there is no arhythmia, the depressing effect of tobacco upon the pneumogastric, the inhibitory nerve of the heart, may allow increased action of the accelerator nerves, and consequently an increase in the number of heart-beats. Then, according to the law governing muscles that, within certain limits, if the nutrition is kept up, increased work is followed by

[1] Ydan Pouchkine: Annals of the Universal Medical Sciences, vol. iv, I. 7.

increased size, hypertrophy of the heart results. This, of course, is very gradual, and so long as full compensation keeps up, the patient may never be made aware that his heart is abnormal. This is the condition of many of the tobacco-users of to-day; but let them take a run around the square, and the result may be serious. Dilatation usually accompanies hypertrophy, and a period of broken compensation is likely to follow. This may be caused by increased pressure within the cavities, as in continued physical strain; or by impaired resistance, due to weakening of the muscular wall, as in disease; generally it is the latter when tobacco is the cause, and, if the disease is acute, we have a condition so common during the prevalence of influenza, *heart-failure*. If it is merely general debility with physical effort we see the condition described in the three cases reported above.

I have not seen a case of dilatation without hypertrophy of the wall, but I am fully convinced that when the tobacco has first caused extreme emaciation with impoverished system, as it sometimes does, such a condition may result.

I realize that the three cases reported are too far advanced to obtain the maximum beneficial result from the withdrawal of the cause, but I feel that if it could be stopped entirely, as proved by the one case, that the progress of the disease would be arrested. As to the cases not so far advanced, I shall mention one as an example, which answers well for the others:

Dr. C. H. has used tobacco incessantly. For several weeks he has suffered with severe pain in the precordial region, and with arhythmia; the pulse is from 90 to 96; hypertrophy is very slight. I ordered tobacco to be stopped, which was done. Relief was almost immediate. I see the gentleman every few days, and now, two and one-half months later, the trouble has entirely disappeared.

I acknowledge the incompleteness of this paper, but feel that attention of the medical profession to this subject, with careful study of the effect of tobacco upon the human system, will probably result in establishing the proof that it is a most important factor in causing and complicating cardiac disease.

THE PREVENTIVE TREATMENT OF TETANUS.[1]

BY T. W. SIMMONS, M.D.,
OF HAGERSTOWN, MD.

THE fact of the incurability of tetanus, together with the theory that its cause lies in a specific bacterium, has suggested to me the importance and feasibility of the preventive treatment of the disease. It was after smallpox had defied all manner of curative treatment for over eight hundred years that Edward Jenner was moved to the discovery and adoption of a preventive treatment that not only fulfilled its mission in preventing that loathsome and dreaded disease, but is to-day emulated in other fields of scientific research.

Pasteur, as did Jenner, but recently demonstrated the wonderful influence of preventive treatment by inoculation, the latent or incubative period of hydrophobia affording a favorable opportunity in which preventive treatment is brought to bear. Bites by rabid animals on the head and face furnish the most certain hydrophobic results, as shown by a mortality, it is alleged, of from 80 to 88 per cent., which is claimed as having been reduced under Pasteur's preventive treatment to 3 per cent. If true, this is a most wonderful life-saving result.

While I do not propose to prevent tetanus by inoculation, as did Behring and Kitasato, I desire to remind you of the great success that has attended preventive treatment in those dreadful diseases that have so signally defied all human efforts to cure. But I do claim that tetanus should be classified with such fatal and incurable diseases, and that there is a preventive treatment for it as simple and feasible as that of smallpox or hydrophobia, and even more so. Tetanus and hydrophobia resemble each other in many prominent respects, so much so that surgical writers generally differentiate them that confusion in diagnosis may not arise; they, however, differ in other important respects that are seldom considered, viz., tetanus is much more common than hydrophobia, and the mortality from it yearly is far greater. In the *New York Medical Record* of August last I find that the Massachusetts State Board of Health declared that little over 100 deaths from hydrophobia have occurred in that State within the last half-century. In an experience of over thirty years I have never seen a case of hydrophobia, nor have I ever, to use the expression of a professional friend, met with a physician who has seen one; yet I have seen and treated a number of cases of tetanus all of which have terminated fatally. May I not, then, ask how so much more prominence and importance should be given to the prevention of hydrophobia than to that of tetanus? For example, a boy is bitten by a rabid dog. The news is promptly heralded throughout the country, and perhaps abroad. He is doubtless hurried off to a Pasteur institute somewhere for preventive treatment; great anxiety is manifested for his safety, etc. But suppose that boy wounds the sole of his foot, and goes home crying to his mother, when upon inspection it is found that he has trodden upon a rusty nail that was lying in the street or garden, and that this had penetrated deeply into his foot. What is thought

[1] Delivered before the Washington County Medical Society of Maryland, November 9, 1892.

of it? What is done? Nothing, perhaps, beyond the tying of a piece of bacon rind about it with a rag; and yet this very wound, from the nature of our past experience, may be fraught with as much danger as the one made by the rabid dog.

The specific bacterium of tetanus, it is claimed, was discovered by Nicolaier, Rosenbach, and Kitasato, and is represented to be a large, slender, motile rod, with sporulations at one extremity, giving it a characteristic drumstick shape. It is anaërobic by nature, and found to exist in the dirt and dust of the street, in the garden, in the stable-yard, upon nails, iron rakes, forks, splinters, thorns, etc., these constituting the most usual means of introducing it into the body. When once in a wound it immediately sets to work and produces, as it is said, ptomaïns, tetanotoxin, spasmotoxin, etc., the active viruses which, when absorbed into the system, give rise to that terrible disease, tetanus.

This theory has been accepted, I believe, by all surgical authors of the present day, to the exclusion of that of traumatism of sensitive or motor nerves. The fact that the feet and hands are more exposed to this class of injuries explains their frequent association with tetanus, and not the injury of their numerous nerves. The specific bacilli do not pass beyond the point of introduction. They are not, it is said, found in the blood or tissues generally, but are confined to the focus of infection. There they make their abode for reproduction of their kind, and for the distillation of that virus which is slowly but surely absorbed into the system with all its fearful consequences.

In the face of this representation of indisputable facts, is it not clear that our plain and unhesitating duty is to kill those deadly bacilli while ensconced within their narrow confines, and before infection takes place? To do this, as I before said, is most simple and feasible. The technique that I have adopted is as follows: I remove all foreign substances from the wound, and thoroughly cleanse the surface about it with a probe or olive-pointed hypodermatic needle, made of gold, about two inches long, and something larger than an ordinary hypodermatic needle. Such a needle has been made for me by F. Arnold & Son, of Baltimore. With this needle attached to an ordinary syringe I inject into the wound, if painful or sensitive, a four per cent. solution of cocaine, which is allowed to remain until its full effects are produced. I then draw out what may remain within the wound, and with the same instrument inject the following:

Argenti nitratis	grs. v.
Aquæ	℥ss.
Or,	
Hydrarg. chloridi corrosiv. . . .	grs. ij.
Acidi carbolici	grs. xv.
Alcoholis	℥ss.

The alcohol is used here instead of water, because it diffuses more rapidly throughout the wound, and it is of great importance that the injection should reach the full depth of the puncture. This procedure, after the use of the cocaine solution, is painless, and the wound is thereby rendered far more comfortable. One injection, if well and deeply applied, will be sufficient. This operation should be performed as soon after the injury as possible, and surely before its lumen begins to close by granulations. It is, of course, presumed from what I have said, that the wound to which this operation is applicable is a punctured one, within reach, and as you well know, this kind of wound is commonly attendant upon tetanus-infection. My experience in the preventive treatment has been entirely satisfactory, as far as it could be judged, for while it is true that all punctured wounds may not be infected by specific bacteria, yet their presence should always be feared, and this simple operation never omitted, as it removes all possibility of danger, and besides has the advantage of relieving pain and soreness, and promotes rapid healing of the wound. So common has it become to disregard these punctured wounds, particularly such as occur in the ordinary course of life, that I feel that their importance and danger should be emphasized and proclaimed. Parents and teachers should instruct the children under their care of the absolute danger of such iniuries when neglected. While it would be impossible at all times to anticipate the danger that might attend upon small and trivial wounds, as they often give rise to the most unexpected and terrible developments, yet, to treat such as are more pronounced and suspicious I feel confident in saying would save many more lives than any curative treatment proposed.

CLINICAL MEMORANDA.

ACQUIRED GASTRIC DEFORMITY.

BY ALLEN A. JONES, M.D.,
LECTURER ON PRACTICE OF MEDICINE AND INSTRUCTOR IN PRACTICE, MEDICAL DEPARTMENT, UNIVERSITY OF BUFFALO.

A. V., aged thirty years, a farmer, consulted Dr. Stockton November 3, 1892. His father died of pulmonary tuberculosis at the age of fifty-five, and his mother at the age of forty-four from some disease that induced anasarca; the family history was otherwise negative. The patient's previous history was good, and he was healthy until about five months prior to the date named, at which time he suffered acute epigastric pain, setting in sometimes directly, and sometimes several hours after meals, and disappearing with vomiting. A diagnosis of biliary colic had been made. On presenting himself he was pale, sallow, and thin, had some headache, slept poorly, was very weak, and complained chiefly of gastric pain, nausea, vomiting, and sour stomach, belching large volumes of foul-smelling gas. The bowels were

persistently constipated; the tongue pale and tremulous, but not heavily coated; the urine was alkaline and excessively phosphatic, and he was very anemic.

External examination alone did not establish the diagnosis of gastrectasia; so I introduced the soft rubber tube four hours after a breakfast of chopped lean mutton, bread and butter, and coffee. When the distal end of the tube passed twenty inches beyond the teeth, there followed a copious flow of undiluted gastric contents, overfluid, dark colored, and emitting that foul yeasty odor so characteristic of pronounced gastric dilatation. At twenty-four inches the tube met with intragastric resistance, beyond which it was not forced; but therefrom I withdrew some potato eaten eighteen hours, and, finally, cranberry seeds taken four days before. A great deal of thick, tenacious mucus and all of the food taken at breakfast were present. Upon withdrawing the tube a small bit of unhealthy mucous membrane adhered, seemingly from the edge of an ulcer.

Chemical examinations of the filtrate showed the total acidity to be 80 per cent.; hydrochloric and lactic acid were both in excess; a little albumin, but no syntonin was present; the biuret reaction was well marked; peptone and propeptone were present, as determined by individual tests; erythrodextrin was present; and rennet was absent.

The following day a breakfast of bread and chopped beef was withdrawn four hours after its ingestion, with the distal extremity of the tube twenty inches from the teeth; then the tube was gently passed beyond the obstruction, and with the distal end twenty-eight inches from the teeth, some potato eaten forty-two hours, and cranberry seeds taken five days previously, were removed. The foul fermentation-odor was present, hydrochloric acid was in excess, and there was an abundance of mucus. The next day lavage was practised three hours after a breakfast of Zwieback and hot milk, and there was withdrawn about a pint of dark grumous material, emitting the usual, characteristic odor. At this sitting the obstruction was again felt at twenty-four inches, and the tube was pushed beyond it, but no more potato or cranberry seeds were found, though mucus and hydrochloric acid were in excess.

While it is difficult to make a diagnosis of gastric deformity, the evidences in the present case all point to hour-glass contraction, the result of gastric ulceration. At any rate, there are present two pouches, the second of which contained remnants of past meals twenty-four hours after the first had been thoroughly cleansed by lavage; the second pouch can be reached only after careful manipulation with the tube, which was painful to the patient, and followed, in one instance, by slight hemorrhage.

436 FRANKLIN STREET.

REUNION OF A PORTION OF AN AMPUTATED FINGER.

BY ORVILLE HORWITZ, B.S., M.D.,
LECTURER ON GENITO-URINARY AND VENEREAL DISEASES IN THE SPRING COURSE, AND DEMONSTRATOR OF SURGERY IN JEFFERSON MEDICAL COLLEGE.

A CASE resulting in a gratifying and complete reunion of severed parts presented itself at the Jefferson College Hospital, which I am tempted to report, though I am aware that it but accords with the experience of the profession.

On the 20th of October last, a young man, twenty years of age, was brought to the hospital, who stated that whilst cutting a piece of sheet tin his forefinger accidentally became entangled, and before it could be disengaged the upper portion was amputated. He brought with him the severed portion wrapped in a dirty rag, as was likewise the stump.

On examination it was found that the knife had entered at the junction of the skin and nail, had passed obliquely downward, emerging just above the first joint, making a clean cut and completely severing the upper portion of the finger. The accident had occurred some twenty minutes before I saw the patient.

With the hope of having the stump reunite to the finger, I placed the amputated portion in a solution of 1 : 1000 mercuric chloride, whilst making the necessary preparations. The hand, being very dirty, was first scrubbed with bichloride soap, washed with turpentine, and once more scrubbed with soap, and then placed in a basin of warm bichloride solution and allowed to soak for fifteen minutes.

The amputated portion having been scrubbed and cleaned, was nicely adjusted; accurate apposition having been obtained, it was secured to the stump by delicate sutures. Care was taken to pass a suture through the divided portions of the nail, so as to give the parts firmness and stability. The wound was then dusted with iodoform and dressed with bichloride gauze. The hand was placed in a splint, and the patient was directed to return at the end of two days.

At the expiration of the prescribed time the patient again presented himself, when, on examination, it was found that the parts had regained their natural appearance; warmth had returned to the severed parts; the color under the nail had become as natural and as fresh-looking as though no wound had ever existed; and what was most gratifying, there was perfect sensation at the end of the finger, showing that the extremities of the nerves were in complete apposition, and that they had already become reunited. Sixteen days after the date of injury the individual returned to work, having perfect use of his hand and finger.

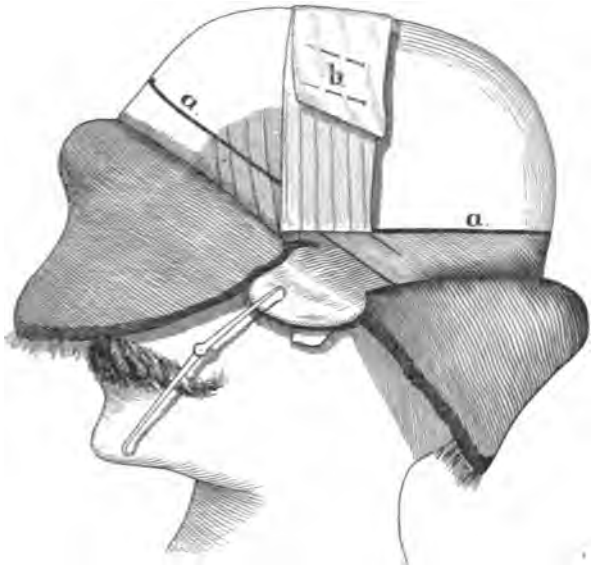
SIMPLE METHOD OF RETAINING THE CALVARIUM IN PLACE AFTER POST-MORTEM EXAMINATION.

BY RICHARD SLEE, M.D.,
PATHOLOGIST TO THE NORWEGIAN HOSPITAL; PATHOLOGIST TO THE CENTRAL THROAT HOSPITAL AND POLYCLINIC DISPENSARY; ASSISTANT PATHOLOGIST TO THE METHODIST EPISCOPAL HOSPITAL, AND ASSISTANT TO THE DEPARTMENT OF PHYSIOLOGY, HOAGLAND LABORATORY.

To retain the calvarium in place after conducting an examination of the head in the course of a post-mortem examination is often a very troublesome and, at the same time, important piece of work. This is especially true in private cases, where the cosmetics are of importance. The ordinary method, that of suturing the divided temporal muscles, seldom answers the purpose; in consequence of the stretching of the temporal muscles, the calvarium becomes displaced, and we have an unsightly ridge just over the eyes, apparent through the integument of the forehead, indicating the line of the cranial incision.

Double-ended tacks are sometimes used, but it requires some skill to manage them, and the noise caused in introducing them is objectionable in private houses.

The circular cranial incision recommended by some authorities is not generally used, as it offers no advantage over the plan shown in the cut, *a–a* representing the usual lines of incision. The saw-cuts cross each other about



one inch above and a little posterior to the external auditory meatus on both sides of the head. If after removal of the calvarium and brain the posterior incision is continued forward in the direction of the zygomatic fossa, there are formed slits in the temporal bones, each about an inch long.

An ordinary roller-bandage, an inch or so in width, is now stretched across the skull and crowded edgewise into the saw-slits. The calvarium is replaced and the extremities of the bandage are brought over the vault of the frontal bone and firmly secured by a flat knot or pins, as is shown at *b* in the cut. The divided temporal muscles may be sutured or not, as seems desirable. It will now be plain sailing to return and suture the scalp in place, as the calvarium will not slip about under one's hands.

This scheme was suggested by Mr. Hall, a medical student who assisted in the mortuary of the Methodist Episcopal Hospital, Brooklyn, N. Y., and I am sure it will be found of service.

MEDICAL PROGRESS.

A Contribution to the Biology of the Cholera-bacillus.—UFFELMANN (*Berliner klin. Wochenschr.*, 1892, No. 48, p. 1209) reports the results of a study of the life-history of the cholera-bacillus when exposed to various conditions. He found that the organisms may continue to live in still water, not exposed to the rays of the sun, for one or two days, or even for five or six days; if the water has a temperature of from 66° to 70° multiplication of the bacilli may take place in the first fifteen or sixteen hours. The bacilli may survive for a day or two days in cow's milk, even though acid fermentation have taken place; at temperatures between 64° and 72° multiplication may take place in the first twelve or sixteen hours. Upon slices of rye bread, unprotected from the air, cholera-bacilli may survive for a day; if the bread be wrapped in paper, the organisms may survive for three days; and if the bread be kept under a bell-jar the organisms may survive a whole week. On the surface of feebly acid butter the organisms survive for from four to six days; in the interior of butter a shorter time. On roast meat, protected from drying by being placed under a bell-jar, they may survive for at least a week; upon smoked fish, kept under similar conditions, they may live to the fourth day. On the surface of fruit, the organisms, after drying, live for from twenty-four to thirty hours; kept under a glass jar, to the end of the fourth day; on fresh cauliflower, for from one to three days. Upon the printed pages of a book they live, after drying, for at least seventeen hours; on writing-paper enclosed in an envelop at least twenty-three and a half hours; upon postal cards for at least twenty hours. Upon copper and silver coins and upon copper plates the bacilli die in from ten to thirty minutes. Upon textures that are apparently dry, they may survive for four days; upon moist goods for as long as twelve days, perhaps longer; under the condition last named they may even multiply. Flies may remain infectious for two hours after having been brought in contact with moist cholera-matter. The organisms may live for an hour, but not for two hours, upon the dry hand.

The Union of Severed Fingers—At a recent meeting of the Johns Hopkins Hospital Medical Society, FINNEY (*Bulletin of the Johns Hopkins Hospital*, iii, 26, p. 122) reported the case of a machinist, the extremities of the middle and ring fingers of whose left hand were cut off, the former just beyond the last phalangeal joint, and the latter at the root of the nail. The man applied for treatment some seven hours later, bringing with him the amputated segments wrapped in newspaper. The fingers were soaked for a short time in a warm 1 : 2000 solution of mercuric chloride. The cut extremities were placed in simple warm water. The surfaces were freshened, and the parts were carefully approximated and sutured. Appropriate support was applied. At the end of a week the parts looked well, and the man stated that sensation was present in the fingers. After nearly three years he had perfect motility and sensibility, and there was only the slightest deformity.

Goiter.—WETTE (*Archiv f. klin. Chirurgie*, xliv, No. 3 u. 4) concludes an elaborate study of the symptomatology and surgical treatment of goiter, as well as the dependence of exophthalmic goiter upon the bronchocele, with an expression of the opinion that the best and most efficacious treatment of exophthalmic goiter consists in the partial removal of the bronchocele. He considers the latter as one of the important causes of exophthalmic goiter. The exophthalmos and the palpitation of the heart may result from pressure upon the sympathetic nerve, or in consequence of a reflex neurosis induced through the terminal filaments of the sympathetic in the thyroid gland. The group of atypical nervous symptoms may be ascribed to a general intoxication by chemical products formed in the pathologic thyroid gland.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, including Postage in North America.

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PHILADELPHIA.

SATURDAY, DECEMBER 31, 1892.

NATIONAL HEALTH-ORGANIZATION.

THE United States should have a National Health-Bureau, the duties of which should include the collection and publication of information with regard to the causes and the means of prevention of disease, and especially of the contagious and infectious forms of disease, the preparation of rules and regulations for National Quarantine, and the systematic supervision of the manner in which these rules and regulations are carried out.

This bureau should not consist alone, nor should it be under the control, of any single official, and in the exercise of its legislative functions it should be a representative body, board, or council.

Although we have advocated the creation of a Cabinet officer of Health, there lies herein the danger of change of incumbent with change of administrative control—a danger that would militate against the usefulness of the office.

The enforcement of the quarantine regulations made or approved by this representative body should be the business of the Treasury Department and of its subordinate bureaus, more especially the Marine-Hospital Service; in other words, the executive work of quarantine should be separated from the legislative and scientific work of the bureau, although it should be under its control so far as the prescribing of methods, the granting of funds, and the observation of its work are concerned. To emphasize this separation, and to make it clear that quarantine is not the sole or even the chief business of the National Health-Bureau, it might be better to place this bureau under the Department of the Interior than under the Treasury Department.

The organization of the National Bureau should include a representative body for legislation, and an executive officer or Commissioner of Health.

The representative body should include one person from each State, to be appointed by the President. The majority of these should be practical sanitarians, or physicians of good repute, but some of them should be men who will fairly represent the commercial interests of the country, including boards of trade, and companies controlling great lines of travel and traffic. This body might also properly include one representative each from the State Department, the Treasury Department, and the Department of Justice. It should meet once a year, or when specially summoned by the President. Its duties should be to prepare rules and regulations for the proclamation and enforcement of National quarantine, in accordance with United States laws, which, when approved by the President, shall have the force of law; to consider estimates of funds for carrying out such rules and regulations to be submitted to it by the Secretary of the Treasury; and to return the same to him with its recommendations for transmission to Congress. It should also make rules and regulations governing the action of its own executive officer or Commissioner of Health, as to the collection and publication of vital statistics; the promotion of investigations into the causes and means of prevention of disease; and the collection of information as to the condition and operations of the quarantine service; and should revise the estimates of funds required for these and for other purposes connected with the work of the National Health-Bureau, transmitting such revised estimates to the Secretary of the Interior to be by him forwarded, with his own recommendations, through the usual channels.

These are merely the broad outlines of a plan for a National health-organization that seems to us to be in accord with the general principles that govern our National organization in its relations to the several States.

The chief objection to be made to it is that such

a council as we have indicated would be too large and too costly, and that a much smaller number—say five or seven—representing different grand divisions of the country, instead of each State, would be cheaper and more effective; but this plan was tried in the National Board of Health and the results were not satisfactory. In our previous editorial upon National Quarantine (THE NEWS, Dec. 24, 1892), we have indicated the essential principles which, as it seems to us, should govern Congressional legislation upon this subject, the chief of which is that State and local quarantines are to be done away with by mutual consent of the States.

The National Health-Bureau must command the respect and approval of the great majority of the sanitary officials of the several States, and also of the great commercial interests of the country. For well-known reasons, that need not be repeated here, the Marine-Hospital Service has acquired a reputation that makes it impossible to grant to it the powers and responsibilities that should belong to such a bureau, and although it will doubtless hold to its traditions and oppose every plan for National health-organization that does not give to it, or, what is practically the same thing, to the Secretary of the Treasury, the supreme headship and control, we are nevertheless of the opinion that in the near future there will be Congressional legislation that will provide an ample field of executive work for this bureau, but will place the control of our National health-interests in the hands of an entirely different organization, in which the special knowledge of experts in all the great interests involved will be fairly and properly represented.

THE METABOLISM IN GLYCOSURIC CONDITIONS AND THE TREATMENT OF DIABETES MELLITUS.

IN a recent number of THE NEWS we drew attention to the chemical methods that make it possible to differentiate the various carbohydrates that under pathologic conditions may occur in the urine. Going back a step further, it may be interesting to discuss briefly the modern doctrines concerning the metabolism that goes on in such cases, and see how far a rational treatment for diabetes can be deduced therefrom.

WORM-MÜLLER, MORITZ, and others have shown that transitory glycosuria may occur even in health, after the ingestion of large quantities of grape-sugar. The amount of glucose that must necessarily be taken by a healthy adult to produce this physiologic glycosuria varies, according to COLASANTI, from two hundred to two hundred and fifty grams. Not only is there a glycosuria of alimentary origin, but there can also be an alimentary maltosuria or lactosuria—in fact, for *every* carbohydrate there is a maximum quantity which the organism can digest and transform; if more than this be ingested the substance will appear in the urine (VON JAKSCH). Nor have the clinicians been slow in applying this knowledge as an aid in diagnosis. The pathologic significance of a glycosuria appearing after a dose of, say, one hundred grams of pure glucose is easily appreciated. KRAUS and LUDWIG found that such a quantity produced glycosuria in cases of atrophic cirrhosis of the liver, cyst of the pancreas, diabetes insipidus, and tachycardia. CHVOSTEK was frequently able with this amount to produce glycosuria in patients suffering from exophthalmic goiter. VON BLOCH'S investigations extended over fifty-one different cases, to each of which he gave one hundred grams of pure grape-sugar; in only four did the substance appear in the urine, and in all of these diffuse brain-lesions existed.

In endeavoring to account, therefore, for the appearance of a glycosuria, one will in future have to think not only of diabetes and diseases of the liver and pancreas, but also of diffuse cerebral changes, particularly those of syphilitic and alcoholic origin. In studying a given case we should attempt to determine the more direct origin of the sugar excreted. Not every *transitory* glycosuria is an *alimentary* glycosuria. Even in diabetes itself, while in the milder cases and in the earlier stages, the glucose has its origin for the most part in the excess of carbohydrates ingested, we must believe, from the conclusive evidence that has been brought forward by those who have worked on the subject, that in every case there comes a stage when the glucose excreted is derived from the albumins of the organs of the body. The proof of this may be found in the study of the products of metabolism that the urine contains. The findings in alimentary glycosuria are very different from those in severe cases of diabetes. In the latter, besides the glucose and an increased amount of most of the nitrogenous substances (urea, uric acid, etc.), there is a marked excess of certain non-nitrogenous bodies, among which may be mentioned acetone, diacetic acid, β-oxybutyric acid, and the lower members of the fatty acid series (formic,

acetic, and propionic acids); in the former there is rather a diminution of the non-nitrogenous substances. The importance of examining the urine quantitatively for these becomes at once obvious, and thanks to the clinical chemists we are now provided with methods that render their estimation tolerably easy.

VON JAKSCH, in his address at Carlsbad in June, 1892, spoke of the relation that he has shown to exist between the metabolism of fever and that of diabetes. In the acute febrile affections we have (with the exception of the glucose) precisely the same evidence of the breaking down of the albumins of the organs that we have in diabetes—the acetonuria, the diaceturia, the lipaciduria, the increased excretion of the ordinary nitrogenous bodies, all are marked. The diabetes-patient is then like a man with fever, but instead of temperature-elevation he has glycosuria. This similarity is made more striking by the report of a case studied by ENGEL, in which a girl with diabetes had an attack of typhoid fever, and at the height of the febrile process excreted no sugar. Such observations are more than suggestive; they are the forerunners of important discoveries.

The older modes of treatment of diabetes have to be considerably modified. There must be no routine management. When there is a syphilitic history, mercurial inunctions often do good; in other cases they rather do harm. A strictly meat diet cannot be recommended, except in the early stages or in mild cases. VON JAKSCH insists on the daily examination of the urine for acetone and aceto acetic acid; as soon as these bodies appear, he advises a mixed diet with, if possible, a stay at Carlsbad. In all severe cases a mixed diet is preferable, and if there be many acid products in the urine, he suggests that from ten to twenty grams of sodium carbonate be given each day.

The use of the synthetic sugars of FISCHER as sweetening agents has so far not been extensive enough to permit any final judgment upon their value. The *Aleuronbrod* introduced by EBSTEIN, of Göttingen, a kind of bread made from pea-meal, has not been so much in favor since botanists have shown that what were microscopically regarded as "albumin crystals" have proved to be only shrunken vacuoles with cellulose walls.

The administration of opium in some form is a measure to which we must resort in nearly all severe cases.

JOHNS HOPKINS UNIVERSITY MEDICAL SCHOOL.

BY a noble gift of more than $300,000, MISS MARY GARRETT has completed the supplementary endowment of half a million of dollars, the sum fixed by the trustees as necessary to equip the departments yet unorganized and insure the proper maintenance of the school. The laboratories of Chemistry and Physiology have been organized since the foundation of the University, that of Pathology since 1884, while the departments of Medicine, Surgery, and Gynecology were established in 1889, when the Johns Hopkins Hospital was opened. There remain the departments of Anatomy and Pharmacology to complete the school, and for these, as well as for other necessary outlays connected with organization, the fund now raised will amply suffice.

No date has yet been decided upon for the opening of the school to undergraduates. We trust it may not be long delayed. There is certainly nothing more needed by American medicine and American civilization than uncommercialized medical teaching.

REVIEWS.

A MANUAL OF ORGANIC MATERIA MEDICA. Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms. By JOHN M. MAISCH, Ph.M., Phar.D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. Fifth edition, with 270 illustrations. Philadelphia: Lea Brothers & Co., 1892.

THIS is an excellent manual of organic materia medica, as are all the works that emanate from the skilful pen of such a successful teacher as John M. Maisch. The author makes no pretensions, but the book speaks for itself in most forcible language. In the edition before us, which is the fifth one published within the comparatively short space of eight years (and this is the best proof of the great value of the work and the just favor with which it has been received and accepted), the original contents have been thoroughly revised, and much good and new matter has been incorporated. Part I is devoted to Animal Drugs; Part II to Cellular Vegetable Drugs; and Part III to Drugs Without Cellular Structure, after which follows an excellent list of drugs arranged according to their origin.

A good feature of the book consists in its giving the proper pronunciation of the systematic plants and animals, which is indicated by marks of accent. In this the United States Pharmacopeia has been chiefly followed; but in many instances in which different pronunciations appear to be sanctioned by good authorities, the several forms are given side by side.

We have nothing but praise for Professor Maisch's work. It presents no weak point even for the most

severe critic. The book fully sustains the wide and well-earned reputation of its popular author. In the special line of work of which it treats it is fully up to the most recent observations and investigations.

The illustrations are good and the alphabetical index all that could be desired.

After a careful perusal of the book, we do not hesitate to recommend Maisch's *Manual of Organic Materia Medica* as one of the best, if not the best, work on the subject thus far published. Its usefulness cannot well be dispensed with, and students, druggists, pharmacists, and physicians should all possess a copy of such a valuable book.

A POCKET MEDICAL DICTIONARY, GIVING THE PRONUNCIATION AND DEFINITION OF ABOUT 12,000 OF THE PRINCIPAL WORDS USED IN MEDICINE AND THE COLLATERAL SCIENCES. By GEORGE M. GOULD, A.M., M.D. Philadelphia: P. Blakiston, Son & Co., 1892.

THE author lays especial emphasis upon the fact that this little volume of 317 pages contains about double as many words pronounced and defined as are usually included in pocket dictionaries, and the publishers aver that, by reason of its shape, etc., it occupies no more pocket-space than is customary in the less-inclusive booklets. It is also said that the book is not a museum of the antiquities of medical lexicography, a gathering of medieval and ancient instruments of word-torture, but that the living, new words of modern medicine have been sought out and put down. Useful tables of muscles, nerves, arteries, microörganisms, thermometric scales, and dosage are also praised. Printer and binder have certainly done their work "most excellent well;" but, as is usual, the author and proofreader have allowed many slips to occur. For instance, the pronounced *eosin* contradicts the accent of the word as first given. *Acerate*, *achylosis*, *achymosis*, *acidosteophyte*, need looking after. *Impaludism* should have been defined as the condition or state of malarial poisoning. The new word *katabolin* has been unfortunate in a slight misplacement alphabetically, and in a manifest typographic error. *Generic* and *gemellus* and *endometritis* have a supernumerary and wrong sign in the pronunciation. The definition of *catoptric test* is incomplete. Although wisely adopting the modern spelling, we notice the incongruities of *centimetre*, *centilitre*, etc., instead of *centimeter*, etc., although even this is not uniform. It is hard work to drop bad habits!

THE PHYSICIAN'S VISITING LIST FOR 1893. Philadelphia: P. Blakiston, Son & Co.

TOGETHER with other indications the busy physician is warned of the beginning of another year by the fact that his visiting list has almost become filled, and the close of the year brings with it the usual output of this indispensable article. Lindsay & Blakiston's appears for the forty-second time, and it can be truly said that the current issue fully maintains the reputation established by its predecessors. A special feature of this edition is the presentation of the doses of official and unofficial drugs in both the apothecaries' and the metric systems.

CORRESPONDENCE.

NEW YORK.

To the Editor of THE MEDICAL NEWS,

SIR: In thinking over the recent events of medical interest in this city, it occurred to me that a short account of the meeting of the New York State Medical Association might prove acceptable to your readers.

The President, Dr. Judson B. Andrews, of Buffalo, took for the subject of his address, "The Alienist and the General Practitioner." He dwelt particularly on the importance of prophylactic treatment, which, although the special province of the general practitioner, was often overlooked. This consists in keeping up the nutrition of children, supplying plenty of fresh air and exercise, withholding stimulating and nitrogenous food during the development of the sexual apparatus, and training them to be orderly and systematic at all times. If, in addition to this, the family physician would exert his influence to prevent ill-assorted marriages, he would be doing a noble work for the cause of humanity.

In discussing Dr. Manley's paper on "Injuries about the Ankle," Dr. E. M. Moore, of Monroe County, said that he had never had ankylosis in his cases of Pott's fracture. His treatment consisted in applying Dupuytren's splint, and in addition, securing relaxation of the tendo Achillis, by using an inclined plane, the foot being fastened to the foot-board, and turned a little on itself.

A very practical paper on "Appendicitis" was read by Dr. Nathan Jacobson, of Onondaga County. He believed that eighty or ninety per cent. of all cases represented a simple catarrhal inflammation, and therefore were amenable to medicinal treatment; and that when the symptoms were of moderate severity, and showed no tendency to increase after thirty-six hours, it was safe to consider that they are of this mild type. The administration of salines or other purgatives in the early stage is likely to prevent the formation of protective adhesions, and even cause perforation. If the symptoms are violent and progressive, operative interference is justifiable, and the first signs of general peritonitis make immediate operation absolutely imperative. When the inflammation is not very severe, and there is a tumor present, the incision should be made along the outer border of the iliac fossa, so as to be entirely extra-peritoneal; but when there are symptoms of perforation or gangrene, and no evidence of protective adhesions, the incision should be made along the outer border of the rectus muscle, directly into the general peritoneal cavity. He also advised that when there are repeated attacks, especially if associated with localized tenderness, the appendix should be removed during an intermission. In deciding the difficult question of when to operate, Dr. Moore said he was largely governed by the presence of dulness on percussion.

In cases of carcinoma of the uterus which had gone beyond the stage of operation, Dr. Janvrin said that he had been able to prolong life, and make these unfortunates reasonably comfortable by first using the sharp curette very vigorously, and then following this by applications or a fifty per cent. solution of zinc chloride. The chief point in the treatment is to stop all oozing after the curetting, and to keep the surface as dry as possible.

The subject of the treatment of puerperal eclampsia received attention at the hands of Dr. Douglas Ayres, of Montgomery Co., who, as a result of many years of active obstetric practice, had come to the conclusion that bold, but judicious venesection was the most important feature in the treatment of this terrible complication, and that when it was desirable to continuously employ a sedative for a number of hours, chloral hydrate is safer than chloroform, and more efficient.

Another contribution on obstetrics was by Dr. T. J. McGillicuddy, of New York, who advocated the performance of *pelvic* version in cases in which podalic version is commonly employed. In cases of transverse presentation it is much simpler, it necessitates the introduction of the fingers only into the uterus, and only a comparatively slight change of position of the fetus. For these reasons, there is less danger of shock and of rupture of the uterus, and the operation can be done when the uterus is retracted on the child's body, a condition in which podalic version is usually impossible.

Turning now to a little different class of subjects, we find that Dr. Alvin A. Hubbell, of Buffalo, contributed a short practical paper on "The Extraction of Steel from the Interior of the Eye by the Electro-Magnet." In his magnet, the "extension points" are placed as close to the coil around the core as possible, and to increase the surface of "the point," and consequently its power of attraction, it is flattened at the end, and for a short distance laterally. The safest and most accessible part of the eyeball through which the magnet can be introduced, is the sclera, just in front of the equator of the ball, and usually on the outer side.

The scientific work of the first day, which occupied three sessions, was concluded by a paper by Dr. Reginald H. Sayre, on "The Treatment of Neglected Cases of Rotary Lateral Curvature of the Spine." Dr. Sayre said that in examining for lateral curvature the child should be placed with its back toward the examiner, and while the knees are held straight, it should try to bend forward and touch the ground with its fingers. Slight degrees of rotation are thus made evident, which would otherwise escape detection. Among the earliest evidences of this condition is the inequality which almost exists in the distance from the umbilicus to the two nipples. After the normal curves of the spinal column have once been disturbed, the superincumbent weight of the body becomes a very important etiologic factor in increasing the deformity. It is very surprising to what an extent these spines will stretch when the patient is partially suspended. The improved position thus gained is best maintained by the application of a plaster-of-Paris jacket while the patient is suspended, and twisted as far as possible into the correct position. In one case in which there were cardiac murmurs and dyspnea on slight exertion, it was noted that during the suspension the pulse would drop from eighteen to twenty-eight beats per minute, and that the heart-action was very much less rapid after the application of the jacket than before. The great objection to sodium silicate and leather jackets is that they are impermeable, and hence act as poultices, and this objection applies also to plaster-of-Paris corsets which have been coated with shellac. This impermeability was prettily demonstrated on two plaster models, one of which had been coated with shellac. When smoke was blown into the interior of the unvarnished one, it readily escaped through the plaster on all sides, but this did not occur in the one which had been varnished.

On the morning of the second day of the meeting, Dr. Edward Cowles, of Somerville, Mass., read a metaphysical paper on "The Mental Symptoms of Fatigue." Dr. George M. Gould, of Philadelphia, being called upon to open the discussion, referred particularly to the effect of eye-strain in causing abnormal cerebral action. He could recall cases in which he considered that it had even produced disorders of the stomach, and anemia. Dr. James W. Putnam, of Buffalo, said he had frequently seen patients become neurasthenic simply as a result of a too "humdrum" life. Dr. H. S. Williams, of New York, thought it would not be difficult for anyone to convince himself of the fallacy of the doctrine that when wearied in body one could "rest" by occupying the mind.

Dr. Williams then read a paper on "Maternal Impressions," in which he endeavored to show that the theory of maternal impressions is not in harmony with known biologic laws; for these teach us that in the mother the law of self-preservation yields to the law of race-preservation, and that all her instincts are made subservient to this.

Your readers are already familiar with the admirable paper on "Brain-Surgery" by Dr. Roswell Park, of Buffalo, so that I need only add that in the discussion of his paper, Dr. Putnam stated that many cases of epilepsy had proved more amenable to treatment with the bromides, after operation, than they were before; and that the President called attention to the great importance of the dietetic treatment of this class of cases.

Some interesting remarks were made by Dr. Benjamin M. Ricketts, of Cincinnati, in connection with his demonstration of the new method of performing intestinal anastomosis devised by Dr. J. P. Murphy, of Chicago. A metal "button" similar in construction to the now popular glove-fastening, consisting of a plug fitting into a socket, is the essential feature. This "button" is made with a central opening. The intestine is simply puckered around each half of this button by means of a thread, and then the two parts are joined together. The button eventually sloughs away, and escapes through the bowel. The operation can be performed in a very few minutes.

In the evening, Dr. Frederic S. Dennis, of New York, read a carefully prepared address on "The Achievements of American Surgery;" and Dr. Henry D. Didama, of Onondago County, prepared the way for the social event of the evening, by reading a chatty little paper containing many practical suggestions. He believed thoroughly in early and complete withdrawal by aspiration of the fluid in pleurisy, claiming that this not only hastened recovery from the acute attack, but prevented most of the usual unpleasant sequelæ. He reminded those who desired to prescribe saline waters, that a saline solution which is so diluted that its specific gravity is less than that of the serum of the blood, passes off largely by the kidneys, instead of acting as a laxative. Those who are wont to extol the virtues of this or that lithia water, and are tempted to violate at least the spirit

of the code of ethics by writing testimonials for the proprietors of these waters to circulate broadcast, would do well to bear in mind the author's statement, that no salt of lithium is equal in its solvent power over uric acid, to the same quantity of potassium citrate. Under the title of "coughing down-hill," we find this writer describing a method of diminishing the severity of the cough in cases of bronchiectasis. It consists in having the patient lie on a bed or lounge, with one hand on the floor and the head almost reaching there. The dilated bronchus or "pocket" is thus inverted, and the accumulated fluid runs out of it, as water is poured out of a pitcher. If this is done four or five times a day, so as to anticipate the filling of these pockets, the patient will obtain marked relief. Dr. Didama says he got this idea from a pamphlet published nearly fifty years ago by the poet, N. P. Willis, who thought he had cured himself of pulmonary tuberculosis by this original method of treatment.

The third day was opened by the reading of a paper by Dr. Frank S. Parsons, of Northampton, Mass., on "Acute Pleurisy." He considered acute pleurisy to be probably due to microbes, and called attention to the fact that secondary pleurisies occur most commonly as complications of other diseases of microbic origin. In the treatment, he had found diuretics the most useful, and purgatives not only unreliable, but sometimes positively dangerous. He suggested that by means of electro-puncture, one could call in the aid of electrolysis to promote the absoption of pleuritic effusions.

The etiology of gastric ulcer was considered in a paper by Dr. Charles G. Stockton, of Buffalo. He suggested that by some process analogous to herpes or to idiopathic hematoma auris, we might readily explain most of the clinical features of this condition.

Dr. Zera J. Lusk, of Wyoming County, read a paper in which he took the ground that when mitral stenosis is present in pregnancy the only safe treatment before the fifth month is the induction of abortion. In discussing this paper, Dr. S. T. Armstrong, of New York, said that he had had under observation for ten years or more a lady who had mitral stenosis before her first pregnancy, and although she had been pregnant five times, she is in good general health, and her last child is a healthy boy.

"The Use of Electricity in Midwifery" was the subject of a paper by Dr. Ogden C. Ludlow, of New York. He considered electricity chiefly of service in midwifery for three purposes, viz.: to produce a sedative action, to facilitate the progress of labor, and to prevent and control uterine hemorrhage. While it calms the general nervous irritability and lessens suffering, it does not, like chloroform and morphine, interfere with the progress of labor, but on the contrary, increases the strength and efficiency of the uterine contractions. Ergot is slow and uncertain; faradization produces its effect instantaneously, and is entirely under control; ergot produces a tonic cramp of the uterine muscle, while the faradic current, properly applied, causes a steady, rhythmic contraction, which closely imitates Nature's method. The current is best applied with the positive pole over the sacro-lumbar region, and the negative on the abdomen, and in order to produce sedation the interruptions of the current should be very rapid and smooth.

Those who have followed the trend of medical thought are prepared to believe that microbes are as omnipresent as the reporters of our enterprising daily newspapers, and, therefore, they will not expect me to describe in detail the long paper of Dr. Nelson B. Sizer, of Kings County, on "The Rôle of Microbes in Disease." He has taken the trouble to make some mathematical calculations illustrating the wonderful powers of reproduction of microbes, and has found that the progeny from a bacillus of average health and vigor would be sufficient at the end of five days to fill a space equal to that occupied by all the oceans on the surface of this earth. It must have been the contemplation of some such awful problem as this which furnished the inspiration to Malthus, which resulted in his well-known theory of population. Without affirming or denying the truth of that theory when applied to human beings, it must be evident that in a disease like anthrax, in which the microbes feed on oxygen, their rapid multiplication must abstract from the blood more oxygen than can be supplied by the lungs, and as a result, dyspnea and cyanosis are developed. It is reassuring to read that the tubercle-bacillus is very easily killed by a bright light, and this observation at once becomes interesting, when the author endeavors to explain on this principle the fact that the occupants of the best-lighted rooms in prisons are much less frequently attacked by tuberculosis than those living in darker quarters; but attractive as is this theory, it seems hardly adequate to explain, as Dr. Sizer would have it do, the fact that many cases of tuberculous peritonitis recover after a simple exploratory celiotomy.

This is a general idea of the very creditable work of the New York State Medical Association at their ninth annual meeting. At the close of the third afternoon session, the new President, Dr. S. B. W. McLeod, of New York, was escorted to the chair. O. C. L.

NEWS ITEMS.

Society Meeting.—College of Physicians, January 4, 1893, at 8 P.M.

Prize for an Essay upon Epilepsy.—The Belgian Academy of Medicine has offered a prize of 4000 francs ($800) for the best essay upon the pathology and treatment of epilepsy. Papers in competition must be presented before February 1, 1894.

Dr. William P. Northrup has been invited by the Trustees of the New York Pathological Society to deliver the Middleton-Goldsmith lecture before the Society in April next; the subject to be announced later.

linical Reports and Lectures by Dr. S. Weir Mitchell.—THE MEDICAL NEWS congratulates its readers on having secured the exclusive right to publish during the coming year a number of clinical lectures and reports by this distinguished teacher and author. The reports, chiefly of the clinics at the Infirmary for Nervous Diseases of the Orthopedic Hospital, will be made by Dr. C. W. Burr, who is Dr. Mitchell's assistant, a fact that would lend them an added scientific value, if such were needed. Each will be personally revised and annotated by Dr. Mitchell, and they will appear in THE NEWS at intervals of about one month, beginning early in January.

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